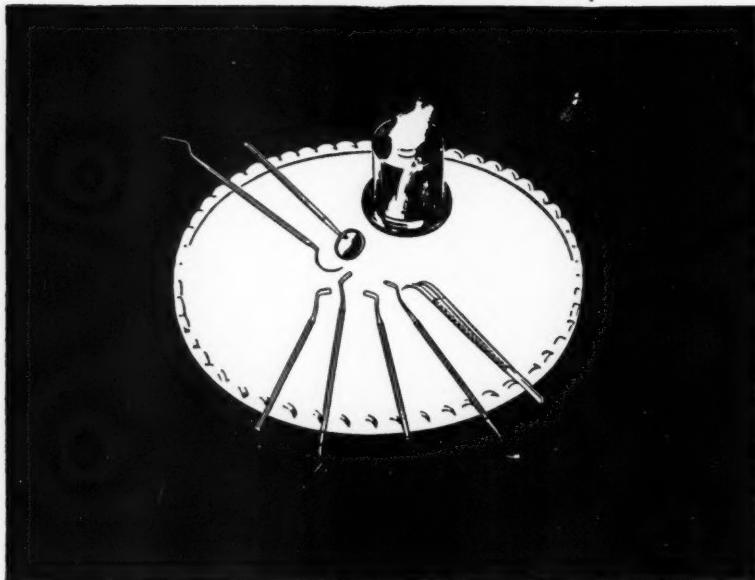


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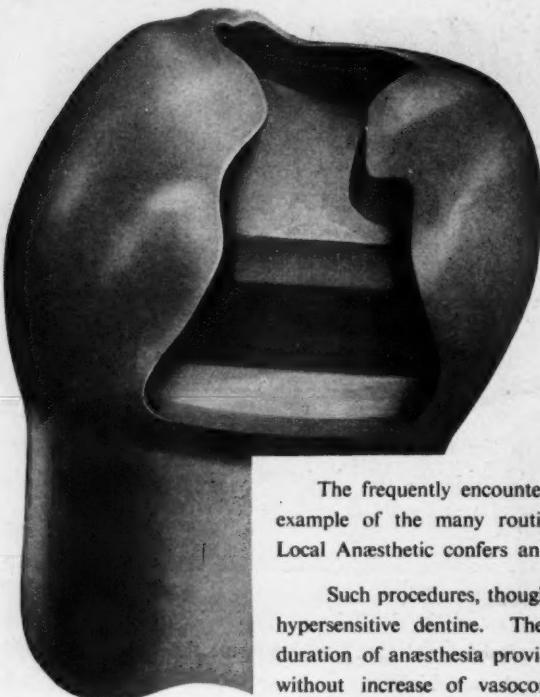
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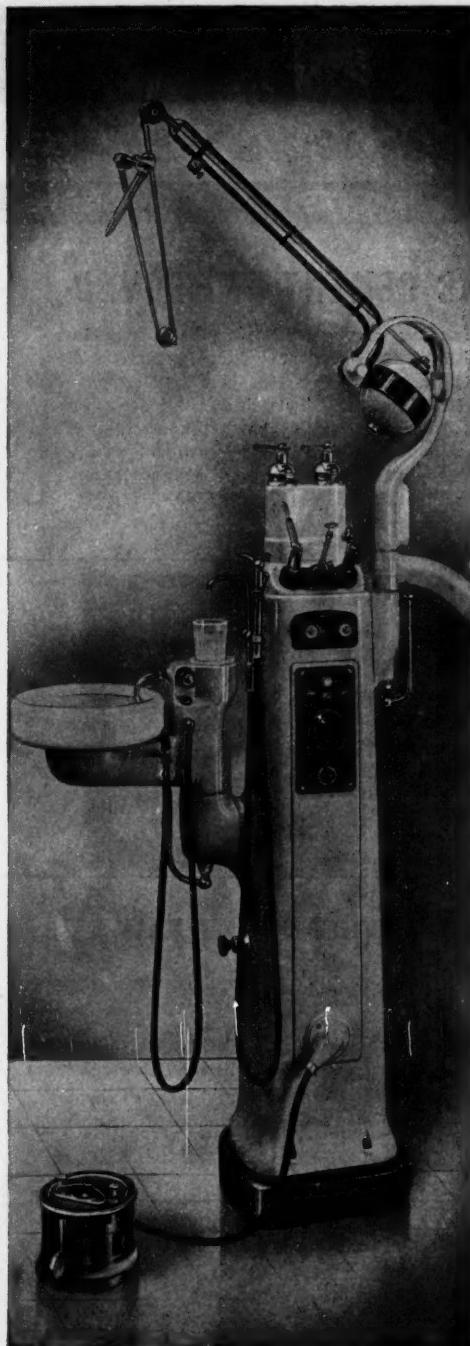
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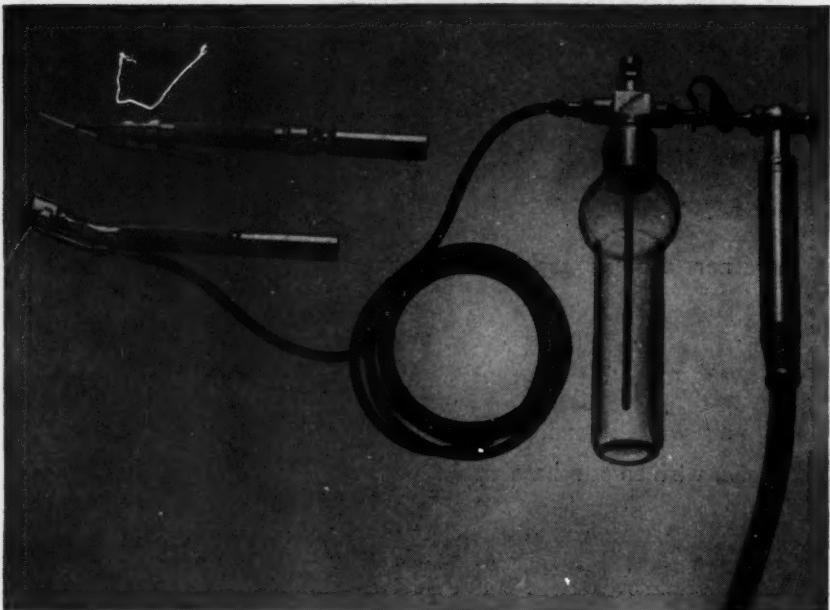
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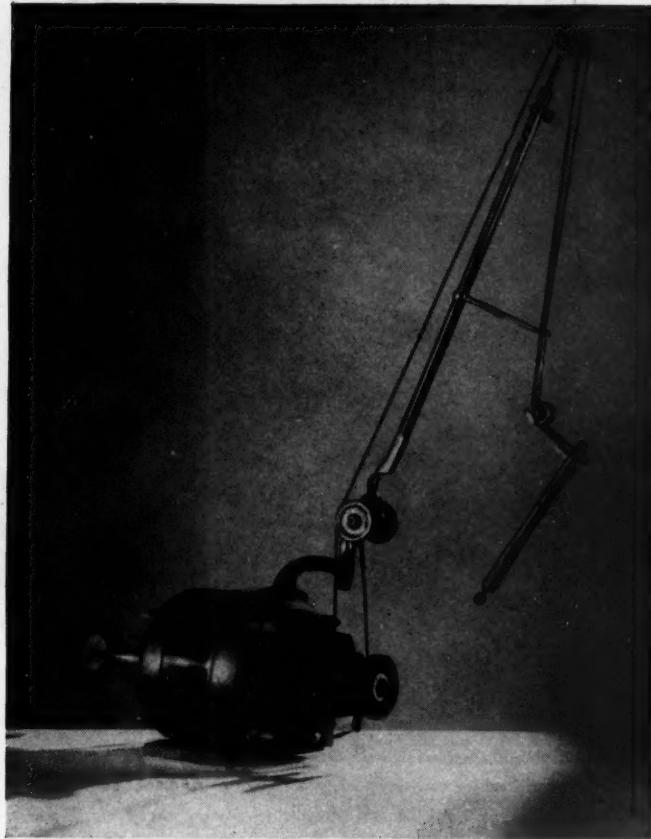
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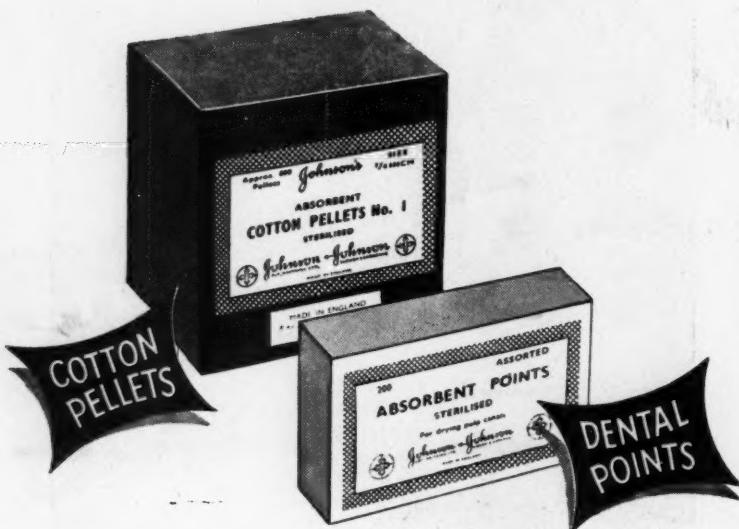
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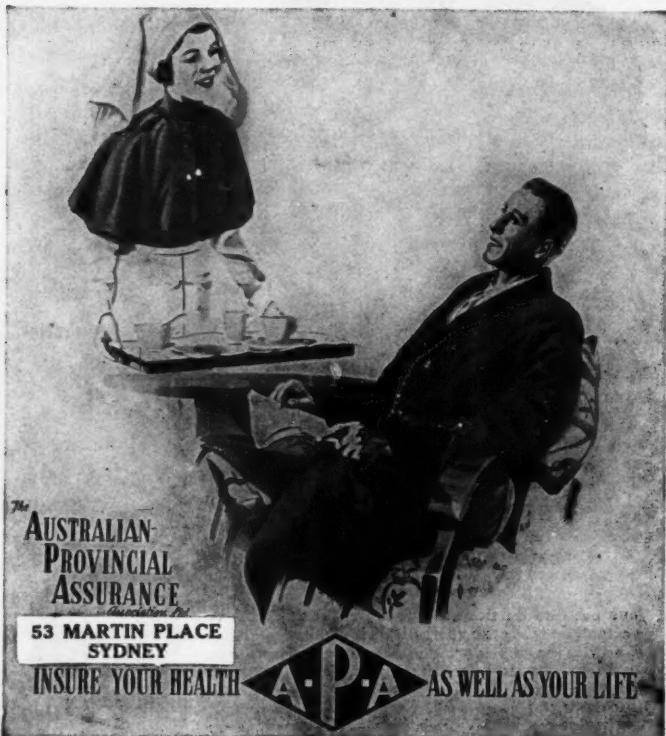
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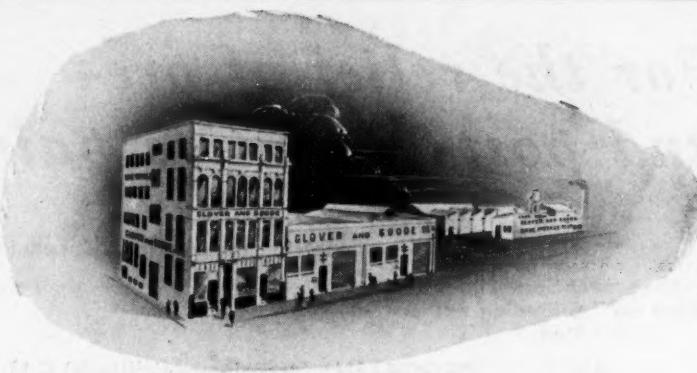
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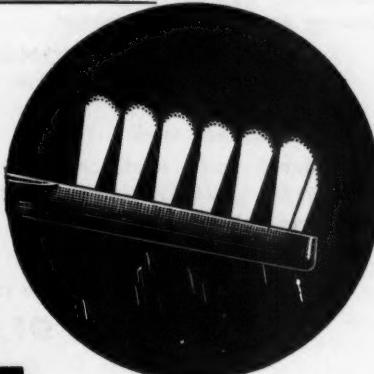
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**CHILD MANAGEMENT IN THE DENTAL SURGERY\***

DOREEN MUSGRAVE, B.D.S.

I present this paper with some trepidation, for its subject is not one that is treated with scientific respect in many of our dental textbooks, nor can I refer—in the manner of dental theses—"According to Smith" or "Jones says . . .". I am not quoting any recognised authorities except, perhaps, Dale Carnegie, and after each profound thought I should add a short phrase, "In my opinion."

Quite a lot can be implied by the title which I have chosen. It can include all the difficulties arising from the different aspects of the child temperament, and how to overcome them. It can also embrace the dental problems of the child's mouth and the measures which can be adopted, if not to solve them, then at any rate to circumnavigate them.

When a child walks into my surgery for the first time, I permit his mother to accompany him. I do this partly because I wish to tell her, after my examination, the state of her child's mouth; partly so that I can explain the position of the six year molars, using the patient as a demonstration model; and so that I can explain the need for the retention of the temporary dentition till correct exfoliation dates.

Some mothers are so ill-informed that it is necessary to place an explorer or probe on the first permanent molar, to ensure that they can see its exact position and that they know it is a permanent tooth. Also, mother's behaviour helps me sum up the general situation.

If the patient doesn't walk into the surgery but is either carried in, screaming unmercifully, or dragged in, struggling violently, being assured that the dentist isn't going to hurt, the situation requires very little analysis. Unfortunately, too many little patients visit the dentist for the first time with acute alveolar abscesses and swollen faces, having had no sleep the previous night. Some may have encountered the dentist before, under similar circumstances. Like the days of yore, as I read somewhere, children sitting down to poultry dinners only knew that chickens had necks and feet; so did they believe that dentists had "needles" and forceps.

---

\*Read at the Twelfth Australian Dental Congress, Sydney, August, 1950.

Seeing a child in this state for the first time is most difficult. I do not believe it is possible to reason with him. A terrified child does not listen. One should continue to speak quietly and reassuringly and do what one has to do, quickly and firmly, with force if necessary and, unfortunately, it often is. It is a nasty experience for a child, but I do not think a general anaesthetic is any less frightening. Exodontia becomes an experience of great magnitude in the child mind for ever after. To undertake any restorative operations after unpleasant introductory extractions becomes far more difficult. It may take weeks to gain the child's confidence.

Let us return, however, to the patient who visits us to avoid having his teeth removed. He walks, hesitantly perhaps, into the surgery, accompanied by his mother. I classify him in one of four groups:

1. The very placid child, well trained, who will tolerate anything—an extremely rare type, but found more often than one would at first imagine.
2. The average child, brought up quite normally, who will tolerate only as much as any one else, but prepared to try at any rate. These, I find, constitute the majority of one's pedodontic practice.
3. The naughty child, thoroughly spoiled, who needs a firm hand and responds well once it is applied and his mother is banished from the surgery.
4. The child who is not only normally uncontrollable but is now terrified as well. To try to reason with this type is useless. Never attempt any painful procedures with him for at least two visits, but compel him to submit to prophylaxis, the use of the bur and the insertion of a temporary dressing at the first appointment. Compulsion is the only way by which he will learn that yours is the superior will and that dentistry is definitely not as painful as he anticipated.

One does not classify the patient into one of these groups, however, at a glance. Appearances can be deceptive. I once had a patient of six who looked completely angelic and I at once relegated him to the first group. Immediately his mother left the surgery he sprang from the chair, unclasped a nasty-looking pen knife and screamed "I'll cut you into little bits!" He rightly belonged to the fourth classification.

Before the mother leaves the surgery, however, I usually commence my examination. I always treat the patient as the most important person present, as indeed he is. The mother is in the background, previously warned that she is to slip away quietly to the waiting room as soon as the examination is completed. I will not tolerate her presence from then on under any circumstances. She may be a help but in ninety-nine cases out of a hundred she is a hindrance. She diverts the patient's attention and answers questions for him. He feels he can turn to her against the dentist at all times. Often she is far more upset than the child. That is the kind of mother who, instead of sensibly preparing the child for a visit to the dentist, remarks to friends in the child's hearing: "I don't really blame kids. Just the sight of the drill sends cold shivers all over me!"

During this preliminary interview I address most of my remarks to Junior, and wait for answers, neither in a falsely hearty manner nor with that adult

condescension that is so irritating to children. It is insulting to the intelligence of even a two year old to make such remarks as "Sittee downee" or "Opee uppee." I speak reasonably and quietly to the patient and while I do so I have the chair elevated sufficiently to place the child's head on a level with my own. My height—though not considerable in my case, of course—seems less frightening.

I must confess I take advantage of my size and sex. Only the other day a five year old boy, much happier after his first appointment with me, expressed his heartfelt opinion with a sigh, "Ladies do it lovely, don't they!" I do believe that females are more successful with children. Their appearance is more encouraging. Moreover, females are more able to wear colours, and I am a great believer in the psychology of colour. The story is told of factory hands who threatened to "go on strike." In the course of their work they had to load onto trucks large, wooden boxes which happened to be painted dark brown. These, they complained, were too heavy for one man to lift, and demanded that they be manufactured on a smaller scale. The foreman promised to see what he could do, and during one week-end had the boxes painted a light green. On the Monday morning the men were pleased to remark that the new smaller containers were much lighter to handle.

Colour can be soothing, exciting or frightening. Yellows and pinks can be used to give warmth to a cold, dark room; soft grey, greens and blues can be used where there is plenty of sunlight. Walls of different colours can be very attractive, such as primrose and grey-green, yellow and grey-blue. Severe white or cream may be most impressive for the adult, but colour, in my opinion, can be introduced into the surgery when one is dealing with children.

Nothing is more calculated to strike terror into the heart of a timid child than the sight of a stiffly starched white coat. White has nasty mental associations—doctors, dentists, nurses; so that uniforms lend themselves nicely to the pedodontia colour plan. I like to wear lemons, greens, blues, etc. But one must be careful that no one colour is allowed to become associated with dentistry. Once I made the mistake of always wearing blue. Fortunately, before anything of an unpleasant nature could happen to any of my little patients to cause him or her to associate blue with dentists, one of the four year old girls asked me pityingly if I only had one dress.

I must admit that there have been times, of course, when my sex and size have almost been my undoing. Because of my success with young children, a sixteen year old boy was brought to me, who, whilst not actually being mentally deficient, was, to say the least, not quite normal. He was of extremely large proportions—and had red hair, too. It took his mother, father and the lift-driver to drag him from the elevator to my waiting room, all imploring him to behave. As I stood beside him in one of his quieter moments he turned to his mother and slapped her soundly across the face, calling her an extremely rude name. As no-one else took any action, my baser nature overcame me and, reaching high, I retaliated for his parents (who obviously never did) with similar treatment. The boy turned upon me and raised his fist. I thought, "This time I've asked for it." But meeting my hostile glare, he stared for a

moment, lowered his arm and burst into tears. After this he docilely followed me into the surgery. We used a mandibular block and completed three restorations in one visit. We were friendly ever after.

Once the patient is seated—alone with me—a real introduction, or re-introduction, to dentistry is begun. I treat all of my four classifications in a similar manner. I explain all instruments as they are used and permit the child to handle them till familiarity makes them no longer horrifying. I keep a supply of old mirror heads to give away, pieces of old waste amalgam brightened with freshly added mercury, small X-ray film boxes, etc.

I believe in the system of reward for efforts on the part of the patient. One of my students used to keep half a dozen beautiful pieces of fruit on top of his cabinet and, if a patient behaved well, he or she was allowed to choose which piece he or she preferred at the conclusion of the appointment. With patients in poorer circumstances you can imagine the eyes of the children. Larger or more polished apples I have never seen. The student was a very bright young man. Some of my readers may work in institutions where such a practice would be ruinous to their pockets, but in one's own surgery it can be followed or similar ideas substituted. It is surprising how young people value those Pinocchio buttons and certificates that our Health Department used to issue.

The burs I explain as tiny electric toothbrushes which clean inside teeth instead of outside, the engine as a sewing machine which is a tooth machine, the syringes as water pistols, and so on. Before opening a cavity I first revolve a bur lightly on the patient's fingernail to show how it revolves, and perhaps cut a hole in a piece of wood. But I never choose a painful restoration during the first visit. I may merely accomplish a little prophylaxis and insert a small zinc oxide and eugenol dressing somewhere—all this, so that the patient understands what is being done, the instruments and the procedures, and gains confidence. The zinc oxide and eugenol dressing is essential, preferably in a lower temporary molar so that it can be seen in a mirror and displayed later on. The very sight of the white filling material impresses both mother and child with the fact that the dentist is really "getting somewhere," although one should never hope to accomplish too much at the first visit.

I might stress at this stage how few dentists remember that eugenol stings and burns if small particles of dressing are accidentally dropped on the tongue. Such an occurrence can ruin all advantages gained up to that point. It is also necessary to forewarn the patient of the effect of alcohol in a cavity. This I explain as ice water which is very cold but goes away almost immediately afterwards. In fact, whenever anything unpleasant has to be done, the dentist must warn the patient first—and be truthful. This does not mean that one stands for five minutes, syringe in hand, needle 42 mm. long very much in sight, saying, "This is going to hurt." One does not give the patient time to think about it, nor allow him to see what is coming. Syringes I take quickly from a nurse who stands unseen behind the chair, and tell the patient while I am injecting, "This feels like a little prick or sting, but it will be over quickly if you keep still." Under no circumstances, of course, does one lie, plunging into deep cavities with size six burs, swearing, "This won't hurt a bit!"—the patient will never trust

you again—but one does not need to reveal the full flavour of impending unpleasantness. Suggestion plays a large part in the handling of the child. Notice the different answers one receives when one asks, "Did that hurt?" and, "That didn't hurt, did it?"

Children are often to be commended for their fortitude, and praise should always be given whenever it is evident that they are trying very hard to behave. Patients of all ages like to believe that they are the best in your entire practice, and it does no harm to say so. Perhaps I unconsciously follow Dale Carnegie, but I believe flattery is a tremendous help, with children at any rate. Particularly is this noticeable in connection with their clothes. Little girls love one to admire their dresses; children of both sexes are anxious to display new shoes. For little boys, I find the proudest moment of their young lives seems to be the day they first wear pants with buttons down the front. They are constantly bringing my attention to this.

They like one to remember the conversation of their last visit, about their families and so on. I make jottings on their charts to help me remember at their next appointment. This is only the reaction of human nature, and works very well with adults also. Of course, class one, the placid type, and class two, the average child who at least will try, react well to all our dental plans. But with class three, the naughty child, and class four, the naughty and terrified as well, it is a different story. They may not even open their mouths, much less sit in the chair. To your pleasant greeting, "Sit in the chair, please," they reply nastily, "I won't!" I fix them with a surprised look and remark very bluntly, "I beg your pardon! Do as you are told." To this one may then receive the popular, "Who's going to make me!"—which is rather a poor reflection on their parents. They are very surprised to discover, however, that I am somewhat of a pocket Hercules, and as I inform them "I am" they find themselves being hoisted unceremoniously into the chair. One may have to descend to their unfortunate level occasionally if they continue to be unpleasant: and sometimes the element of surprise at this turn of events is invaluable.

If the patient refuses to open the mouth, I merely hold the nose till he does. One textbook advises placing a towel over the face, and very, very rarely it may be necessary. I always try to reason with older children first. For toddlers the practice is highly inadvisable. They just can't understand what is happening, and why, and a fresh terror is piled upon terror. Premedication may then be used, although I must confess I cannot remember the last occasion when it was necessary.

Children adopt all kinds of manners and means to delay procedures whilst in the chair. They want a drink of water. They want to tell you about their small brother or sister—a very long story. There is also the child who wishes to visit the toilet as soon as he or she has to open his or her mouth. This, I allow the first time. From this day on the patient must go to the toilet immediately before being brought through the surgery door. Then there is the patient who promises to be sick on the spot. Some children actually can vomit whenever they wish. Finding a patient of this type, I have my own methods for curing the tendency. I give fair warning that should there be

such an occurrence I will very quickly place a towel over the patient's face—and keep it there for a minute or two. I have never known the patient repeat the performance if I have been forced to do this.

To older children one can only point out the consequences. Psychologists tell us that children do not reach the age of reason until about four years of age, three to three and a half if bright, later if mentally dull. Thus, to try to be logical with unco-operative tiny patients is bound to meet with failure. The statement, "Only two more toothbrushes if you sit still, three if you don't!", can easily be interpreted by a child of five, but will not penetrate the understanding of one of three. One can only continue to be firm, as gently as possible.

Do not imagine that I enjoy severity with struggling patients of any age. But something has to be done for them by some means or other. I have, indeed, gone to great lengths to help them and divert them as much as possible. For one horrible week I installed a miniature radio at the chairside. This was a distinct failure. With the engine in use, interference was so great as to prevent the patient hearing anything. With the handpiece resting on its hook, the patients twiddled dials for as long as possible to delay its removal.

I read a suggestion in an American magazine about movies projected onto a screen in front of and above the chair. But when I considered a few details such as who would operate the projector, the patients' varying tastes in films, and other problems, it was too complex to give it any further thought.

Cabinets in the form of dolls' houses is another impractical scheme. I can well imagine the reaction, for example, of some ten year old boys to such an idea.

The waiting room can cater for all tastes in magazines. The Little Golden Books are an excellent series for young children, but let the older ones read their Dick Tracy comics, the Superman efforts, etc. If it is necessary that children wait for you, permit them to be really entertained and to indulge in their own taste, not in the literature that you may consider better for them.

Anything else but magazines and bright furnishing is unnecessary in a waiting room. Toys are always roughly handled, are soon broken and become very dirty. Some patients may become so attached to them that they may show their reluctance to leave them or part with them in no uncertain manner. Moreover, a waiting room is an evil with which we could wish sincerely to dispense. Time should be so manipulated that waiting entails merely a few minutes. Nothing can so tire or unsettle a young patient as a long delay before any operation is even commenced.

I have seen one form of diversion in surgeries, however, of which I heartily approve. One of our better known colleagues keeps tanks of tropical fish and marine life in full view of the patient. Evidently it is very soothing to watch the perambulations of goldfish, for psychologists are loud in their acclaim of their study by adults beset by mental problems.

I am a devotee of the use of the mandibular block for restorative procedures in all cases except for those cavities which look as if they could be prepared

with the quick use of about three burs. I never employ maxillary blocks for small children and am particularly careful with my technique for the use of local infiltration in the upper jaw. This can be very painful. I wall off the area and dry it, then apply a topical anaesthetic solution on a pellet of cotton wool. I wait three or four minutes before making the injection. In the absence of topical anaesthesia, hard finger pressure in the area before inserting the needle is a great help. Injection into a diseased area is, naturally, useless as well as dangerous. I always inject in the palate first while sensation is least, starting half way between the gingival tissue and the apex of the root, progressing to the apex after depositing a few drops of solution. The buccal injections I make over the alveolar crest in the interproximal areas. It is then necessary to wait at least five minutes, more if possible, for good anaesthesia. Commencing before this time puts the child to the nervous strain of the injection and then defeats its object by exposing him to unnecessary pain by too early use of the bur.

A tuberosity injection gives excellent results for upper molars in older children. The injection is made into the buccal fold at the distobuccal root of the first molar, and the needle carried inwards, backwards and upwards about three quarters of an inch where one to one and a half cubic centimetres of solution is deposited; then half a millimetre mesially to the apex of the mesiobuccal root. For extractions a palatal injection is given.

I never use local infiltration in the mandible, relying wholly on the block. It is made in the same manner as in an adult, except that the needle is injected in a lower plane and inserted about threequarters of an inch. One to one and a half millimetres of solution is ample. If warned, children are intrigued rather than frightened by the strange and extensive tingling sensation of the block, and behave so well that all cavities on one side can and should be cut whilst its effect lasts.

I explain the anaesthetic solution as magic water—to young children only, of course—which puts the teeth to sleep for a while. The temporary nature of the effect is to be emphasized, for it is not encouraging to believe that the condition will continue indefinitely, one's face feeling twice its size on one side, half one's lip seeming to be missing on the rim of a glass. I also show them how one can chew one's own lip without realising, and remind them to be particularly careful until the lip “wakes up.” Nasty laceration can occur after lip or tongue chewing during the use of the mandibular block. If discovered immediately and treated at once with the application of ice, the after-effects are greatly minimised. But if the laceration occurs after leaving the surgery, great sloughing areas about the size of a shilling can be seen the following day. Then nothing can be done except to apply glycerine and tannin packs frequently, but the area does not clear up completely for a week to ten days.

If a small cavity can be completed at the first visit, so much the better. But this should only be done when it requires a minimum of time, without involving any sensitive dentine. At a second appointment more extensive work can be undertaken, using a block for mandibular restorations in preference to attempting cavities in the maxillary dentition. While completing as many

cavities as possible under the effect of the anaesthetic solution, one should not continue for longer than twenty minutes. Zinc oxide and eugenol dressings, never gutta percha, can then be inserted, and these can be replaced with amalgam at subsequent visits. In this way injections at every appointment can be avoided, and pulps allowed to settle down before inserting permanent restorations. Short appointments are essential even for the best behaved of children, longer periods than half an hour greatly taxing their endurance and patience. That is the main reason for my not extending cavities in temporary teeth as much as in the permanent dentition.

Cavity preparation is very similar for both the deciduous and permanent teeth. The long pulp horns of the deciduous pulp are responsible for the several important differences. It would be as well to study the morphology of the deciduous molars, with special reference to the pulp chamber.

In the *first upper temporary molar*, the form of the pulp cavity corresponds with the surface form except that the pulpal horns are more acute than the cusps would indicate. There are three or four pulpal horns, depending on the type of tooth. The mesiobuccal is the largest of these, then the mesiolingual, which is not quite so high, the distobuccal being third in size. The mesial surface of the molar is thus difficult for mesio-occlusal preparation, but the distal surface is a little better. The occlusal wall of the pulp cavity is extremely concave and thus affords extra depth towards the central pit. The buccal and lingual surfaces of the tooth converge towards the occlusal, making it difficult to retain a matrix band. This difficulty is exaggerated by a marked bucco-gingival ridge also. (Fig. 1.)

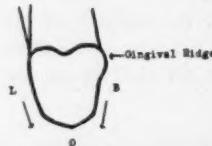


Fig. 1.—Cross section of a first upper temporary molar, showing the convergence towards the occlusal surface. (L = lingual; B = buccal; O = occlusal).

The *upper second deciduous molar* resembles the upper first permanent molar in that it has the same general pit and groove pattern, but the buccal and lingual surfaces converge more towards the occlusal surface, and the bucco-gingival ridge is more pronounced. These difficulties are, however, not as pronounced as in the first deciduous molar. There are four or five pulp horns, depending on the type of tooth, the mesiobuccal the longest, mesiolingual next, distobuccal third and distolingual the least. The occlusal wall of the pulp cavity is deeply concave. This allows for quite a deep preparation in the region of the central pit, which must rise towards the mesial border and less so at the distal. The mesial surface is not quite as bad for cavity preparation as in the first deciduous molar, while the distal surface is very favourable for cavity preparation because of the greater thickness of dentin in this area and the relatively short distal pulpal horns.

The *lower first deciduous molar* has four cusps: mesiobuccal, mesiolingual, distobuccal and distolingual. The lingual, mesial and distal surfaces being

parallel to the long axis of the tooth makes it easier to retain a matrix band than on the first upper deciduous molar. The mesiobuccal horn is the largest pulpal horn, the mesiolingual second in height but third in extent, the distobuccal third in height but second in size, the distolingual fourth in both size and height. The buccal and lingual surfaces converge towards the distal. Thus, both the mesio-occlusal preparation is unfavourable because of the long pulpal horns and the disto-occlusal because the occlusal surface is narrowed at the distal, reducing the strength of the filling.

The *lower second molar* resembles the lower first permanent molar with the same pit and groove pattern, and is a five-cusp tooth. The buccal and lingual surfaces converge more towards the occlusal and the gingival ridge is more pronounced. There are five pulpal horns: mesiobuccal and mesiolingual are about equal, distobuccal and distolingual are almost the same; then least in height is the distal pulpal horn which, however, is lingual to the buccal horns. Thus, the mesial surface may be difficult for cavity preparation, but the distal more satisfactory. Yet, care must be exercised in extending buccally and lingually because of the distal and distolingual pulpal horns.

We have thus examined the difficulties which await us in cavity preparation and realise why pulp exposure is so frequently encountered. Dentists give these as their main reasons for avoiding Pedodontia apart from, of course, the mental stress involved.

Let us then consider the main technical problems of which operators complain, and discuss their solution. They include:

- (1) Saliva.
- (2) Pulp flare-ups after the insertion of restorations.
- (3) Pulp exposures.
- (4) Matrix retention.
- (5) Filling fracture.

I have never found saliva much more troublesome in children's mouths than in adults. When profuse, however, one can only console oneself that actual cutting is very rapid with the soft deciduous dentine. The use of rubber dam is frightening, impractical and completely inadvisable for small patients, so that when restorations are to be inserted one can only employ cotton rolls for stemming the flood. These held in position throughout the entire procedure with the operator's fingers are quite satisfactory.

Pulp flare-ups after insertions of restorations can always be expected if cavities are not lined. Unlined restorations can *always* fail. Zinc oxide and eugenol dressings can be sealed in at a first appointment when the cavity is completed and, at a second visit, a little of it can be left as a base. This is a happy solution when difficulties are encountered in placing cement. Restorations in central and lateral incisors are extremely difficult to line, and for this reason are to be avoided. One finds that failure follows fifty per cent. of one's efforts. I therefore either leave centrals and laterals alone altogether or else disk the interproximal surfaces where caries is active and paint with Howe's solution, followed by eugenol. For aesthetic reasons disks should be applied so that cutting is done more towards the lingual. The stained and peg-shaped appear-

ance of the teeth may be displeasing to parents, but it is surprising how unnoticeable the slight space can be when disking is done correctly and, of course, before caries is too extensive. (Fig. 2.)

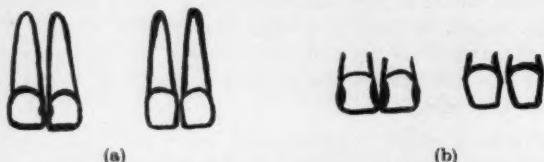


Fig. 2.—The disking of carious upper anterior teeth.  
(a) Incipient caries. Teeth disked free from areas of food accumulation.  
(b) Progressive caries treated after a similar fashion.

I must stress that gutta percha as a temporary dressing must never be employed. It gives rise to great discomfort and sensitiveness of dentine.

Resorption of the tooth root proceeds for the latter three years of the life of the normal deciduous tooth and thus the pulp, whilst not being wholly degenerative, cannot be considered as an active healthy tissue. This may account for the fact that few temporary teeth respond favourably to pulp capping. When abscesses have formed and pulps are putrescent or non-vital, deciduous teeth can only be extracted, in my opinion. The ribbon-like canals of the roots make successful filling so difficult as to be impossible. If, however, the pulp is vital, though cariously exposed, vital pulpotomy should be performed. Under local infiltration or block anaesthesia the pulp is removed from the pulp chamber with a bur. In other words, the pulp is amputated at the junction of the pulp chamber and the root canals. Debris is flushed away with sterile cold water and, after the haemorrhage has ceased, the cavity is filled with zinc oxide and eugenol, or calcium hydroxide. The patent apices allow sufficient flow of blood to give satisfactory healing, and a calcific deposit seals the amputation site. Resorption proceeds normally.

This procedure is the answer to the difficulty of the long pulp horns where exposure is unavoidable.

The retention of the matrix band may also have its problems, but I find that I can quite successfully use a matrix of the No. 8 ivory type, sometimes having to place my finger upon it for added support. The approximating tooth will help with retention, bearing in mind that the contact points are more like contact areas. After peeling the matrix band away from the restoration it is advisable to feel for margins with an explorer while the amalgam is still reasonably soft. Testing for occlusion should have been performed prior to insertion of the amalgam so that few fears should be entertained when performing the final test.

Many dentists complain that their amalgams in deciduous teeth are prone to failure because of fracture. This is because their cavity preparation is at fault. Of course the long pulp horns make the cavity weak in its lack of depth, but compensation may be obtained for this by cutting broad occlusal steps.

These should be quite as wide as the interproximal extent of the preparation, without constricted necks. (Fig. 3.)

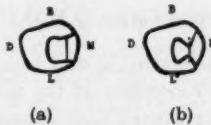


Fig. 3.—The correct (a) and incorrect (b) design of occlusal steps. (B = buccal; D = distal; M = mesial; L = lingual.) Dotted line indicates the position in which fracture is likely to occur.

Opposing cusps should be stoned to avoid too heavy occlusion.

I have always found silver amalgam to be the best filling material in children's teeth. It is hard and easily controllable. I am sceptical of the advantages of copper amalgam. Petralits, Kryptex and the like seem to cause pulpal flare-ups in spite of all precautions, and wash away.

## THE USE OF BALANCED OCCLUSION\*

H. ASSHETON-CHIN, D.M.D. (HARV.).

Balanced occlusion and the machines and techniques used to achieve it are once again in the limelight. Proponents of the plain line articulator are claiming that two men recently have proved that balanced occlusion is impossible to obtain. It may appear that way to the careless reader, but let us examine the subject.

About the adjustable anatomical articulator there are two schools of thought. On the one hand we have Terrell, who has designed and built the most perfect adaptable articulator yet made, and on the other we have Kurth of Chicago, who states that the adjustable articulator has absolutely no value in movement.

In between stands Craddock, who states that the truth lies somewhere between "the chromium plated triumph of engineering and the barn door hinge."

I do not intend to enter this controversy, but I think this—it is undisputed that the mandible moves forward in the act of incising and sideways in the act of chewing; even supposing we admit that an exact reproduction of the mandibular movements is impossible to obtain, nevertheless, it seems obvious that we must allow for these movements when we build the denture; any small discrepancy in angle of condylar guidance will be cushioned by the tissue resiliency and like effect, and we will still get smoothly sliding dentures, which we most probably will not get if we ignore these movements. The fact remains that dentures built according to these principles are better functioning dentures than ones built on the plain line articulator and cause less bone loss over the years.

Both Kurth and Craddock maintain that the 6 m.m. of protrusion necessary for the recording of mandibular movements with any degree of accuracy on the articulator is a false distance because the average distance necessary for the lower incisors to travel to come into edge-to-edge relationship with the uppers is 2.7 m.m.

However, with that limited movement it is impossible to set the articulator with any accuracy, because with the bite records in position the condylar guidances can be set only within a wide range of error.

Alternatively, if 6 m.m. protrusion is used the controls can be set with much greater accuracy but the position thus reproduced will be one that the patient will never use.

Moreover, the angle that the anterior wall of the fossae makes with the horizontal plane at the point where the condyle touches when it is in 6 m.m. protrusion is different to the angle in a 3 m.m. protrusion, because the condyle head does not travel in a straight path but on a constantly changing curve.

The angle at 6 m.m. protrusion is generally greater than that at 3 m.m. and I think it is an advantage to use it. If the teeth are set to accommodate a 30° condylar angulation and the actual condylar angulation is only 25° then

\*Clinic presented at the Twelfth Australian Dental Congress, Sydney, August, 1950.

all is well. In this case, in sliding forward with the teeth in their 30° setting the condylar head will lose contact with the anterior wall of the fossae, which it is well able to do.

In the reverse condition, if the teeth are set for a 25° condylar inclination and the actual angle is 30°, then in function the condylar head will remain in hard contact with the anterior wall of the fossae, and because the teeth were set to accommodate a lesser angle they will lose contact in the molar region, bilaterally in a protrusive movement and on the balancing side in lateral excursion. This loss of molar contact in function is just what we try to avoid, so that for practical purposes I see no objection to using the 6 m.m. protrusion records.

Which one of these schools of thought you wish to follow, or whether you will take a position midway, is a matter for yourselves.

However, neither Kurth nor Craddock has discredited balanced occlusion in itself; they have only attacked the usefulness of individual records.

Note Kurth's attack is against the adjustable articulator, not necessarily against a movable one, and Craddock admits the usefulness of a movable articulator with an average setting. So it resolves itself into the fact that they have not really attacked balanced occlusion, but only the methods that are often used to obtain it.

It is possible even with a plain line articulator to get balanced occlusion by a tedious process of grinding and balancing in the mouth, but he who uses a plain line will not usually go to that trouble.

The value of balanced occlusion is not only that it enables people to eat better: also it prevents damage to the underlying bone when they do eat and, further than that, it prevents trauma to the bone during the 23 hours of the day when they are not eating but when the mandible is nevertheless constantly in motion.

If the teeth are not balanced so that they slide freely without cusp interference there will be positions where one or two teeth will take the whole load. This means transmission of excessive force to the bone underlying that area, and this constantly repeated will produce necrosis of the connective tissue lining the bone, just as traumatogenic occlusion in a natural dentition will produce necrosis of the periodontal membrane of the traumatised tooth.

Unbalanced occlusion usually means locked occlusion and often the locking is so great that there is no harmony with mandibular and condylar movement, which would tend to force the patient into a chopping movement, purely open and close. It would not be bad if the patients kept to this movement but they do not.

The natural function of the mandible is to move laterally as well and so it happens that the cusp interference occurs with resultant trauma.

Usually with locked posteriors we find anteriors locked too, that is, with a marked overbite without any compensating overjet.

This cannot be tolerated even with natural teeth. In a natural dentition when the posterior teeth become worn down so much that a locked vertical overbite occurs, the upper anterior teeth fan out or the lower anteriors become loose and are lost unless the posterior teeth are built up again.

In artificial dentures having a locked overbite, the moment we get contact heavier on one anterior tooth the entire denture is affected. At every chewing motion or act of swallowing the upper denture is forced forward and upward. This places excessive stresses on the anterior portion of the upper ridge and almost always causes bone absorption with resultant flabby ridge.

The full upper and full lower are two units of 14 teeth each and, by securing balance, the pressures on the teeth are distributed to the entire denture bases and thence to the ridges as a whole, and not to one particular area as is the case with one or two teeth interfering. Consider the case of the snowshoe: with them on the pressure of a man's weight is distributed over a wide area; without them it is concentrated in one spot.

In any discussion of occlusion we must pay regard to the freeway space. When the mandible is at rest the natural teeth are not normally in contact; there is a space between upper and lower teeth of usually 3.5 m.m.

If in the construction of dentures this freeway space is not maintained the teeth will be in constant contact. Keeping the dentures in the mouth day and night under almost constant pressure will show its ill effects. The underlying bone was not built for that kind of pressure and its application will cause pressure atrophy.

If this pressure is prevented, the underlying structures are allowed rest, just as the long bones of the leg are allowed rest when we lie down.

So far I have not mentioned retention. Balanced occlusion helps here in a negative sense, in that it does not tend to dislodge the dentures.

The physical factors used in the retention of full dentures are:

- atmospheric pressure,
- adhesion by contact,
- muscle co-ordination,
- leverage and balanced occlusion.

With all the other factors functioning well, dentures that are not balanced will, in lateral excursion, tend to dislodge. One interfering cusp can cause tilting and dislodgment, just as an unseen gutter can cause a man to trip, whereas a smooth pavement will not. The upper denture may be firm enough to resist this but the lower rarely will.

Articulated models to show the movements mentioned were presented on the Terrell Co-ordinator.

The complete steps in the construction of full dentures in balanced occlusion using the Microdenture technique, including gothic arch tracing in bite registration (as it was considered that a correct bite is the very basis of successful occlusion) were shown and the completed dentures contrasted with dentures set up on a plain line articulator.

## RADIOLOGICAL EVIDENCE OF PARADONTAL CHANGES IN ROOT-TREATED TEETH

E. J. PERINT, L.D.S., R.C.S. (ENG.).

It has been established that there is a correlation between an unsuccessful technique of root filling and the onset of chronic paradontitis. In order to recognise these correlations, radiograms of teeth, root-filled by different techniques, have been examined and these observations are the basis of the following analysis and evaluation.

The inflammation of the periapical zone is generally due to an ascending infection arising from the infected pulp, but the periapical area may also be infected by the haematogenous route or via the gingival crevice.

The inflammation starts in the periodontal membrane. If chronic inflammation has to be differentiated on the basis of clinical symptoms, one should use the term "chronic proliferative paradontitis," because this general term describes more clearly the nature of the process. The individual types of inflammation are distinguished on the basis of the predominant tissue changes, as in histopathology. The proliferative character of the chronic inflammation is invariably substantiated by histopathological changes.

Cases of chronic paradontitis due to infected pulp may ensue in various ways. Their practical classification is as follows:—

1. Spontaneous ascension of the infection from the infected pulp of an untreated tooth.
2. Infection of the periodontal membrane due to exogenous causes, such as infected instruments, dressings, or traumatic injury due to instrumentation.
3. After an unsuccessful or incomplete root filling.

The chronic conditions arising from the first group are those caused by caries of the dentin which is spreading towards the pulp. The sequel is a pulpitis, and consecutive paradontitis. The process is to be regarded from a similar aspect, if the chronic paradontitis is due not to a progressing infection deriving from caries but to other phenomena giving rise to pulp necrosis, such as the pressure exerted by a haematoma following a blow, disturbance of the circulation in the vessels of the pulp or chemical changes in the filling material leading to destruction of the pulp.

The processes belonging to the second group are similarly of ascending proliferative type. They differ, however, from the first group in their aetiology. Here the root canal is infected during the treatment; the instruments passing through the infected canal and acting as carriers spread the infection to the periodontal membrane.

In the third group the underlying cause of infection is a deficient filling. The unfilled part of the canal, if infected, contains germs which infect the periodontal membrane by ascension. The sequelae of deficient fillings are the same, even if the canal is uninjected.

In 1942 I compiled statistics of the cases of chronic paradontitis observed in the course of 10 years, in out-patient clinics and in private practice. Owing to the war a great part of my radiograms and records have been destroyed. The remaining few being insufficient, I repeated these examinations in 1947 on a smaller number of patients. The comparison of this new data with that observed in institutions has shown that no relevant differences exist between the "well-to-do" patients and those treated in out-patient departments.

TABLE I.

	1942	1947	1942	1947	1942	1942	1947	1947
Number of all teeth examined ... ...	126,159	7,837						
Number of the teeth free of caries ... ...	69,214	4,703	54.86%	60.01%				
Carious teeth, untreated	14,218	1,151	11.27%	14.69%				
The same with paradontitis ... ... ...					796	5.59%	70	6.08%
Teeth having been filled or crowned with untreated roots ... ...	26,412	1,178	20.93%	15.03%				
The same with paradontitis ... ... ...					1,167	4.41%	83	7.04%
Teeth provided with root fillings ... ...	16,315	805	12.04%	10.27%				
The same with paradontitis ... ... ...					3,779	23.16%	333	41.36%
Total : ... ...	126,159	7,837	100.0%	100.0%	5,282		486	

My data suffer from deficiency in as much as, in cases of root fillings, only the unsuccessful ones can be demonstrated as a causative factor. The changes due to a pre-existing infection cannot be established by means of x-rays, and such changes may be due to pre-existing infection or irritations due to faulty restorations.

The comparative studies have been based on detailed clinical examinations and radiograms taken at the patient's first attendance. The aim was to establish to what extent the paradontal membrane was affected because of incorrect filling technique and the various root-filling substances.

According to those principles, the teeth observed could be divided into four groups. The first group dealt with the intact teeth, i.e., those without caries or fillings. Teeth suffering from caries, where no preceding treatment could be observed or inferred, formed the second group. The third group included teeth provided with an apparently good restoration or a crown where no root treatment had been performed, i.e., the pulp had not been exposed. In the fourth group all pulpless teeth have been placed. Special attention was

paid to this latter group, to find numerical data as to correlation between filling technique and paradontitis, by means of x-ray examination.

The main difference between the two groups of figures lies in the fact that the first was larger; the high numbers of cases represent a certain value and the cases observed correspond to the time of peace. However, the filling technique applied in those cases was not always up to the standard. In the last decade the pulp was still frequently treated by amputation. The second group offers a relatively smaller number. In it the shortage of adequate filling materials which occurred after the war is clearly reflected in the results. This group is characterised by the decrease in the number of patients in which radiolucent material was employed for mummification and silver points, allowing more accurate work, were more extensively used.

In the group of the teeth with non-treated caries, the number of cases of chronic paradontitis is rather low (1942 = 5.59% and 1947 = 6.08%). In this group, however, all types of caries have been collected without discrimination. In cases characterised by deep caries or exposure of the pulp cavity, as seen in the x-rays, the signs of a chronic paradontitis or at least a rarefaction were nearly always present. The number of these cases is low, because the deep caries or the pulpitis induced the patients to have their teeth treated or extracted.

The filled teeth which fall into the second group may be similarly evaluated. Apart from the fact that pulp necrosis may occur under a cement filling, if the pulp cavity had been affected as a result of secondary caries, the symptoms of paradontitis could be found with few exceptions.

In these two groups a strikingly high number of cases of paradontitis was found (in 1942, 5.59%, 4.41%, and in 1947, 6.08%, 7.07%), because this process was no doubt preceded by a pulpitis associated with excruciating pain which must have induced the patient to call for treatment. It may be inferred from these data that every 20th patient suffering from pulpitis had not been treated at all.

The third group was formed by the teeth provided with various root fillings, but of all teeth present in the mouth at the time of extraction every 10th was root filled (in 1942, 12.94% and in 1947, 10.27%). In this form these statistical data need completion. Firstly, the number of the root fillings made on the removed teeth was unknown, though this data would no doubt influence the statistics. Secondly, the age of the patients had not been taken into consideration, though it is commonly known that, in young individuals, the extirpation of the pulp and root filling occurs much less than in middle-aged individuals, where the number of root-filled teeth is greater than the average 10%.

In contradistinction to the above groups, chronic paradontitis frequently occurs in the root-filled teeth (in 1942, 23.16% and in 1947, 41.36%). If it is taken into consideration that my second observations have been made on a considerably lesser number of patients than the first one, then this number may safely be regarded as being too high.

The treatment of the root canal is considered inadequate if:—

1. All pulp particles have not been removed prior to the root filling;
2. the canal has not been dried;
3. the filling material does not fill the whole spaces previously occupied by the pulp;
4. the filling material is not inert or is liable to deterioration;
5. the filling material is not sterile.

The root filling can be accomplished faultlessly in all cases in which anatomical conditions are favourable, i.e., if the canal is continuous to the apex. After the pulp has been exposed the fact that the canal is obliterated is at once revealed. In these cases it is better to remove the whole tooth, whereby the harmful factor producing paradontitis, i.e., the deficient root filling, is eliminated.

Unfortunately, certain procedures to clean and disinfect the root canal are still employed, which defy all biological principles, and the results may be observed on the x-rays of the teeth.

I do not believe that an infected root canal can be adequately sterilised. Owing to the anatomic conditions of the canal its mechanical sterilisation is impossible; there is no instrument available which could enter into the small branches of the canal where the bacteria are no doubt harboured. On the other hand, these manipulations frequently carry the infection deeper until it reaches the sterile paradontal membrane. No solution, either aqueous or oily, is known to be capable of filling the whole root canal and its smallest branches and to sterilise these spaces without diffusing through the apex to the paradontal tissues, where they cause irritation or infection like all the ancient substances used in "killing the nerve."

Very likely, these principles have not been generally adopted, as seen from my statistical data. Apparently, an improvement can be observed lately in the technique of root filling and the selection of the filling material. The number of cases in which non-radio-opaque pastes were used, or the amputation of the pulp was applied, is decreasing (in 1942, 47.10% and in 1947, 36.03%). On the other hand, extirpation of the pulp and use of silver points for root filling are insufficient to solve the whole problem of paradontitis.

Both tables show that the root-filled teeth in which the above mentioned rules had not been observed do not represent any marked improvement in comparison with the old procedures. Even the most careful procedures are unsatisfactory, and they will be so, unless a better technique is devised. This claim may be verified by the fact that paradontitis is still present in 5.74% (1942) and 2.41% (1947) in those teeth with an apparently quite satisfactory root filling.

A filling cannot be pronounced to be perfect on the basis of a single x-ray film. At the utmost, it may be said that, in that particular plane of projection, the filling reaches to the apex. A greater number of x-ray films taken from various angles would be more reliable, but this is rarely practicable. Even the

silver point reaching up to the apex is not a guarantee of perfection, unless it is embedded in a suitable material which is adherent to the walls. A thin silver point can be introduced into most teeth, the root canals of which are not obliterated, and it can be pushed through the apex into the periodontal membrane. This procedure has been adopted in a small percentage of all cases. Among the cases in Table II more root fillings have passed the apex.

TABLE II.

	1942	1947	1942	1947
The total number of teeth provided with root fillings showing signs of chronic paradontitis ... ... ... ...	3,379	333		
With non-radio opaque fillings... ... ... ...	1,780	120	47.10%	36.03%
With radio-opaque, deficient, incomplete fillings ... ...	1,739	191	46.02%	57.36%
With apparently complete root fillings ... ...	217	8	5.74%	2.41%
With fillings having passed through the apex ... ...	43	14	1.14%	4.20%
Total : ... ... ... ...	3,379	333	100.0%	100.0%

Some dental schools have no objection to the method of root filling where the fillings reach beyond the apex. As they put it, this procedure is less harmful to the periodontium than a deficient filling. This is true; in my statistics the percentage of paradontitis was not higher in the group of root fillings reaching beyond the apex than in the group of teeth filled to the apex. It would appear that the complications produced by fillings protruding beyond the apex are less serious and the onset of chronic consecutive paradontitis is smaller in number than in the other groups. Nevertheless, we claim that a complete root filling reaching precisely to the apex should be aimed at. The silver point which has passed through the apex may cause damage even if the operation was carried out under favourable conditions without infection. Damage or destruction of the periosteum and periodontium may be followed by chronic paradontitis, due to injury.

On summarizing the observations, it may be stated that the number of patients suffering from paradontitis as a sequel of a deficient and maladjusted root filling is considerably higher than of paradontitis due to other causes. This common disease is, in the vast majority of cases, caused by inadequate dental treatment. The x-ray films of about every fourth root-filled tooth display the signs of a chronic paradontitis.

## MANDIBULAR ANCHORAGE DEVELOPMENT IN RELATION TO INTERMAXILLARY MOVEMENT\*

A. J. CUNLIFFE, M.D.S.

I propose to deal with the development of mandibular anchorage specifically in relation to the treatment of Cl. II. div. I malocclusion.

The problem essentially is to construct the lower appliance so that the teeth will not "slide", as it were, through the supporting bone under intermaxillary elastic traction.

The technic employs platinised gold bands, lingual wire, molar buccal tubes, wing brackets, stainless steel archwires and the tube spring appliance as developed by Taylor<sup>1</sup>.

We will first deal with the deciduous dentition.

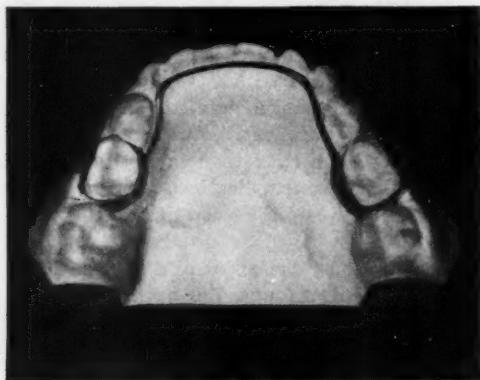


Fig. 1.

Figure 1 illustrates an anchorage auxiliary of an .030" platinised gold lingual wire soldered to the second deciduous molar bands. This appliance is used where the lower arch is normal in form and dimension: this condition is often found in Class II, div. I malocclusion. As this appliance is passive and produces very little tooth movement, the bands and the archwire required to develop sufficient anchorage may be placed at the same time (.018" stainless steel at first—.022" subsequently).

Such an appliance is illustrated in Figure 2 where the fixed lingual wire has been changed to a tube spring appliance, some arch development being required.

\*Clinic presented at the Twelfth Australian Dental Congress, Sydney, August, 1950.

1. Taylor, A. Thornton—Tube spring and "T" sleeve: Am.J.Orth., 34:758-72, 1948.

The tube spring appliance is placed on its own at first and the incisor (or deciduous cuspid) bands are placed when the upper arch is sufficiently developed for the introduction of intermaxillary traction. For additional anchorage a steel ligature is tied in the median line joining the labial and lingual components. A clinical point to be watched is that when the arches are developed to a stage where elastic traction may be initiated, the tube spring appliance may be rested for 1-2 weeks to allow free gingival massage, then replaced with the spiral spring extended and the incisor bands and the archwire placed. The distal ends of the latter are bent downwards and outwards to engage and hold rubber ligatures.

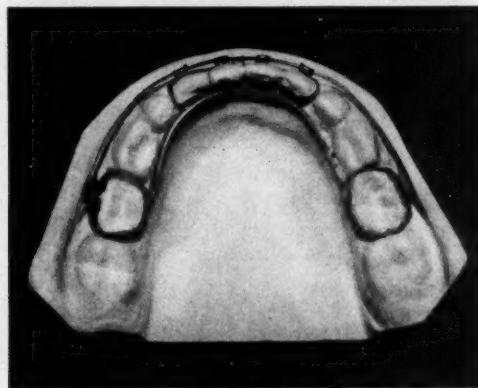


Fig. 2.

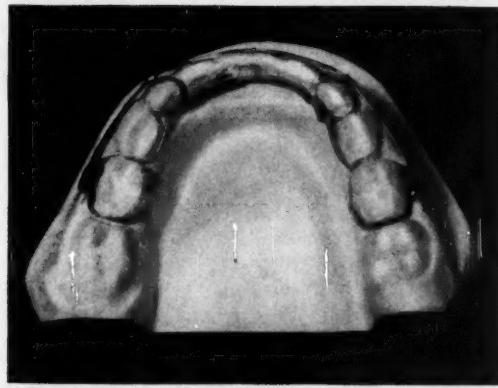


Fig. 3.

Figure 3 illustrates another type of appliance adequate for anchorage purposes in the deciduous dentition. The tube spring appliance on deciduous cuspids is used where expansion in this area is required. The disto-lingual spurs

of .030" platinised gold wire engaging the first deciduous molars are for additional anchorage.

The deciduous molar bands may be cemented at the same time as the tube spring appliance, the latter being first placed without brackets as these are a source of irritation to the mucosa when there is no labial arch.

When the maxillary and mandibular arches are developed sufficiently to allow the introduction of elastic traction, a lower labial arch is placed and the traction commenced 3-4 days later.

We now pass to anchorage development in the permanent dentition.



Fig. 4.

Figure 4 illustrates an anchorage auxiliary of a tube spring appliance on wire soldered to first premolar bands. This is used when the relations of the first premolars and the anterior six teeth are considered normal and it is desired to preserve them throughout treatment. As it is a passive appliance it is placed with molar bands and labial arch at one appointment. This fixed

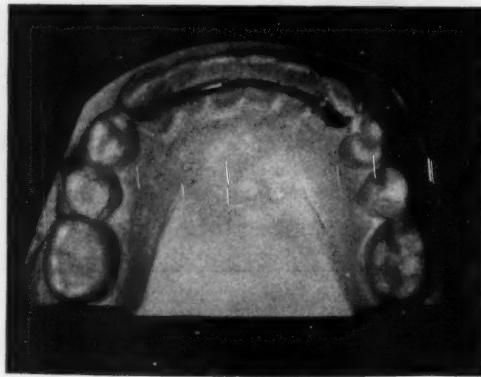


Fig. 5.

appliance may be substituted for the tube spring, as shown in Figure 7, when some development is required in the anterior region.

Figure 5 illustrates an anchorage auxiliary of a tube spring appliance on cuspids. Molar bands may be placed at the same time but the archwire is not placed until the arches are ready for intermaxillary traction. By this stage all the initial tissue reaction has gone and the labial arch is absorbed without undue soreness.

A good standard of oral hygiene must, of course, be maintained with the appliances and, if so, they may be left in the mouth for the whole period of treatment.

The large root area of the cuspids gives great resistance to displacing forces in this type of therapy. Additional anchorage may be gained later by banding the first premolars as in Figure 9, where the tube spring appliance has been substituted by a fixed appliance on cuspids.

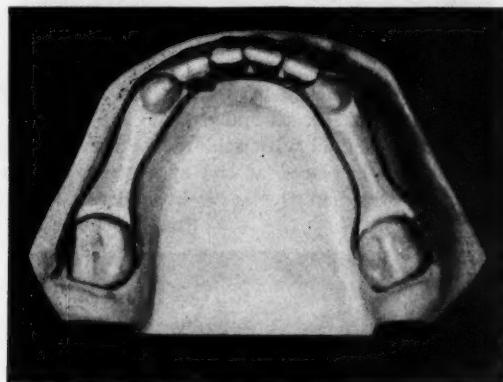


Fig. 6.

Figure 6 illustrates an appliance used in the mixed dentition where it is felt that a stage of treatment before the eruption of the cuspids and premolars would be beneficial to the patient. The whole appliance may be placed at one appointment and the fixed lingual wire may be changed to a tube spring appliance on the first permanent molars.

It is sometimes necessary to step the arch gingivally in the premolar area to avoid trauma by the maxillary deciduous molars or premolars which are in supraocclusion when there are no antagonists.

Figure 7 illustrates an appliance which is very adaptable to mandibular anchorage requirements. The tube spring with spurs (and without brackets) is placed with molar bands—brackets and labial arch added subsequently. This

anchorage, with ligatures engaging the incisors, is usually sufficient to maintain stability throughout the period of treatment, but it may be augmented, if necessary, with cuspid bands.

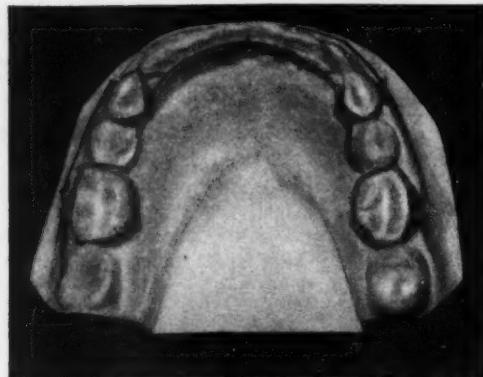


Fig. 7.

Figure 8 illustrates an appliance used when the lower arch form is considered normal and minimum tooth movement is required. The lingual component is .030" platinised gold wire soldered to the first permanent molar bands. The whole appliance is placed at one appointment and rubber traction commenced in one week. The cuspids may be banded for additional anchorage.

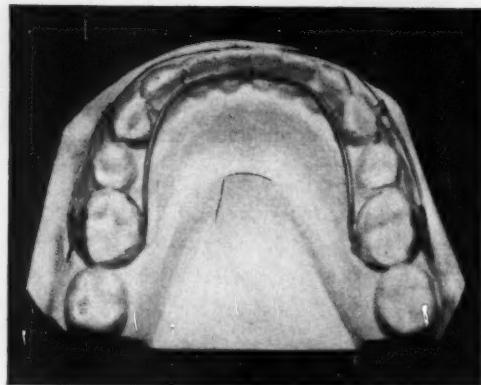


Fig. 8.

Figure 9 illustrates a useful anchorage when it is desirable to maintain the relations of the six anterior teeth but some development is required posteriorly. Mesio-lingual spurs soldered to the first permanent molar bands and engaging the second premolars afford additional anchorage. This appliance

may be placed at one appointment and should be sufficient throughout active treatment. The institution of intermaxillary elastic traction is, of course, dependent on the stage of development of the maxillary arch form.

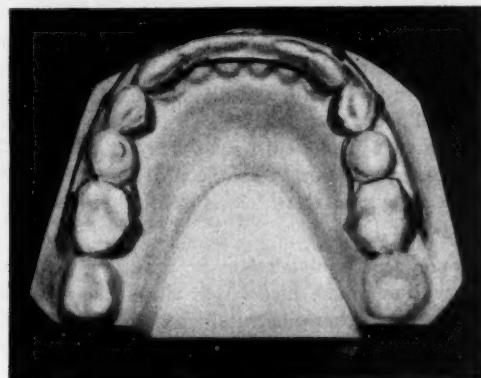


Fig. 9.

## COBALT-CHROMIUM ALLOYS AND THE DENTIST\*

ALAN R. DOCKING, M.Sc. (MELB.), A.A.C.I.†

*What are cobalt-chromium alloys?* They are base metal alloys which are now used five times more frequently than gold for dentures in the U.S.A. but, curiously, scarcely at all in England. They are based on a very hard heat- and acid-resistant alloy known as Stellite and developed in 1907 by Haynes, a pioneer car manufacturer. Their composition is essentially about 70:30 cobalt-chromium. Any departure from this ratio may lead to inferior mechanical properties and decreased tarnish resistance, except that within wide limits cobalt may be replaced by nickel which is somewhat cheaper and which also lowers the melting point.

Up to about 5 per cent. molybdenum or tungsten improves the properties for dental use. Beryllium in the nickel-rich alloys has a hardening action like beryllium in copper. Many other elements, such as iron, silicon, and aluminium, play important but usually undesirable roles and so must be kept at a minimum. Carbon also affects strength and brittleness and can be varied by the method of melting.

*How are they processed?* As an alternative for gold alloys can they be processed in the same way? The answer is in the negative for the high cobalt alloys on account of their comparatively high fusion points, about 1300° to 1500°C. (2350° to 2750°F.) as against, say, 850° to 1100°C. (1500° to 2000°F.) for gold. This requires mould temperatures of about 1000° to 1200°C. (1850° to 2200°F.) as against 400° to 800°C. (750° to 1500°F.) for gold. High-temperature flames such as oxy-hydrogen or oxy-acetylene are needed for melting, a procedure which requires considerable experience particularly as the alloy is sensitive to the method of melting.

Furthermore, special high temperature investment materials are required, these having a high silica content which, for the normal high melting alloys, is bound with a delicately adjusted partially hydrolysed alcoholic solution of tetraethyl silicate. This investment sets slowly and requires tamping and other special attention during the processing if cracking is to be avoided. For the nickel-cobalt-chromium alloys on the low side of the melting range, certain plaster-bound investments can be used. The alloys have a higher casting shrinkage than gold, which is another reason for a higher silica content and extra care.

The processing laboratory normally duplicates the model supplied by the dentist after undercuts and other factors have been attended to. Duplication usually requires special care and refrigerated duplicating materials. Before waxing-up, the model is usually treated to ensure the adhesion of the wax or preformed patterns. The special preformed plastic patterns that are often used are shaped for optimum strength for a given type and size of clasp or bar.

\*Table clinic presented at the Twelfth Australian Dental Congress, Sydney, August, 1950.

†Commonwealth Bureau of Dental Standards.

As the alloys are much harder than gold alloys in the softened state, high-speed polishing machines are usually required and sand-blasting equipment is also useful.

*How do these alloys compare with gold?* On the credit side we can list the following:—

- (a) They are as resistant to tarnishing and as tolerant to the tissues.
- (b) They weigh considerably less (nearly one-half).
- (c) Strength is comparable with the best golds.
- (d) The cost is lower as base metals only are used.

The disadvantages from the point of view of the dentist wishing to handle his own materials chiefly concern processing difficulties:—

- (a) On account of the high fusion ranges they require more and costlier equipment.
- (b) They require considerably more experience.
- (c) The ductility is less than some golds.
- (d) There is less freedom of movement where required for certain partials.
- (e) There is little or no amenability to heat treatment as for some golds and so cases cannot be softened for adjustments.
- (f) Polishing is more difficult and burnishing is virtually impossible as the alloys cannot be softened.
- (g) The repair technique for best results is not as straightforward.

*How dependable are they?* From the point of view of physical and chemical properties, the quality of the finished case depends somewhat on the choice of available alloys and very much on the processing. Although cobalt-chromium cases are not greatly affected by heat treatment the method of melting and casting is important in regard to two factors at least:—

- (1) Amount and distribution of carbon.
- (2) Grain size.

Both are affected by the melting and casting procedure. For use at mouth temperature, fine grain size is a desirable property, particularly in clasps.

*What can be done to ensure best results?* As it is impracticable at present for most dentists to process cobalt-chromium alloys in their own laboratory, they are dependent on the commercial laboratories. However, these laboratories are striving to give the best service and the healthy competition that exists ensures that this is maintained. On the other hand, the dentist must realise the part he plays is as important as the impression and that, of course, is all-important. No amount of care on the laboratory's part will rectify an inaccurate impression. Care must be taken in the selection of impression material; agar or reversible hydrocolloids still seem to be the most outstanding as far as accuracy is concerned.

Whatever impression material is used it cannot be stressed too strongly that for accuracy the model should be poured immediately. Work in the U.S.A. and here demonstrates that one cannot rely on storage of hydrocolloidal impression materials despite what the manufacturer may advise. *The cardinal rule is pour the model immediately.* For this, use a reliable artificial stone which shows little expansion, keeps a good surface, and is not friable.

If a complete design of the appliance is not given all the essential features should be indicated, not forgetting to point out teeth that are not suitable for supporting clasps because of large restorations, crowns, or other reasons.

*What about adjustments?* It is undesirable to effect adjustments in these alloys as they cannot be softened to allow this to be done safely. There is a fair amount of latitude in cobalt-chromium alloys but adjustments, if any, must be done carefully and with discretion. The usual precautions of using round-nosed pliers, etc., are obvious here. It is far better to be sure of the model and the design than to risk adjustments with the final product.

*How can cobalt-chromium dentures be repaired?* Gold soldering or spot welding may be used with a moderate degree of success but ideally the repair should be carried out in an atmosphere of purified hydrogen to prevent discolouration and to provide maximum serviceability.

*Acknowledgments.* I wish to thank the Dental Laboratory Proprietors and others who so willingly assisted me in the preparation of this Table Clinic. I should make special reference to Mr. Eric Wirth for his help in providing demonstration material even though at the time he had a number of his staff absent through illness.

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## DENTAL ASPECTS OF THE BRITISH NATIONAL HEALTH SCHEME

J. F. READING, B.D.S. (SYD.).

The change from a system of private practice, panel dentistry, and treatment of children by school dental officers to the National Health Service, almost overnight, could not be expected to proceed without many difficulties and problems for the profession and Ministry of Health. When it was decided to establish, in effect, free dentistry for everyone in Britain, be they resident or even "cross-channel tourists," the Spens Committee investigated the various time factors to complete standard clinical procedures and recommended that "33 hours a week by the chairside for 46 weeks in a year or, say, 1,500 chair-side hours a year, together with the hours necessarily spent outside the surgery, represent full but not excessive employment and that, generally speaking, employment in excess of these hours tends to impair efficiency."

On the report the original scale of fees was based providing very reasonable fees for conservative work, such as £1/5/- to £1/17/6 for silicates, £1/10/- for compound amalgam cavities, 16/6 for normal scaling and gum treatment. Full dentures (upper and lower) only brought £10/10/-, while conservation of deciduous teeth from silver nitrate application to pulpotomy and M.O.D. amalgam was listed as 10/-. In the early days of the scheme dentists, overwhelmed by a tremendous inrush of patients, worked at least twice the hours recommended by the Spens Report, earned twice the estimated amount, with the result that the Scale of Fees was progressively reduced. The cut first decreed that a monthly cheque of £400 was paid in full, and any earnings in excess of this were subject to a straightout 50% cut. Later the Scale of Fees was altered, whereby silicates dropped to 18/-, compound amalgams to £1/2/6, scalings to 12/6, full dentures to £9/9/-, and conservation of deciduous teeth to 7/6. In May, 1950, this revised Scale of Fees was subject to a further overall cut of 10% and, at the time of writing, a further 17½% reduction seems probable.

Each dentist, on joining the N.H.S.\* is listed with his local executive council which is responsible for payments and other matters. Patients are free to choose their own dentist, who has also the right of refusal. Once the treatment has commenced under the N.H.S., the dentist has undertaken to "provide all treatment necessary to secure dental fitness," without cost to the patient.

The yellow record form, E.C.17, is really simple and quick to complete and provides a record for the dentist of projected and completed work. For all routine work—scalings, fillings, extractions—no approval is necessary. The dentist proceeds with the work and, when complete, the form is sent to the Dental Estimates Board for payment. Prior approval is necessary for such treatment as dentures, apicoectomies, multiple radiography, oral surgery, gold fillings, and crowns, to name a few. Generally, approval of these special cases, apart from dentures, is usually delayed up to three months in some instances, so much so that many dentists adhere to "routine work."

\*National Health Service.

From the dentist's viewpoint, the N.H.S. has produced very crowded appointment books, eliminated all bad debts, allowed him greater freedom in completing standard work, e.g., bite-wing X-rays and the like, and provided, if constant reductions are not the rule, an assured income. The patient likewise has freedom of choice of dentist. No one is denied treatment, and regular six-monthly visits for examination and report are possible, if a dentist can be found with a vacant appointment. Here lies a difficulty, as the demand is still greater than the supply of dentists, and assistant dentists are able to command a choice of position and a fairly lucrative remuneration.

A few of the major discrepancies of the system seem to be:—

(1) *Conservation of deciduous teeth.*

The fee allowed for this procedure under the scheme is 7/6 (less the current cut), no matter what treatment is undertaken. If a tooth is extracted under a general anaesthetic, 17/6 is claimed, which includes an anaesthetist's fee. If, instead, the pulp was removed as a pulpotomy and a restoration (amalgam) subsequently placed at a further appointment, the fee would still be 7/6. In this time, one or two fissure cavities in a permanent tooth could be restored for 15/- or £1/10/-. Thus, unfortunately, some dentists have excluded children from their practices. High salaries in private practice have caused the resignation of many school dentists. Salaries offered in the School Dental Service, which undertakes the inspection and carries out a measure of treatment for school children, do not compare with those obtainable under the N.H.S. These fees are fixed by the local educational board who feel unable to raise substantially the salaries offered to dental officers without starting a vicious circle involving the salaries of local medical officers or council engineers. As a consequence it is difficult for parents to obtain treatment for their children without long delays and the treatment more often consists of extraction with no provision for space maintenance. The results of the Health Service will best be judged in five to ten years' time when large numbers of orthodontists will be essential.

(2) *Dentures.*

With a fee of £8/10/- for full upper and lower dentures, some dentists consider it uneconomical to deal only with these cases and refuse treatment. These dentists will only accept partial denture cases when they are able to carry out some conservative work at each denture sitting. It is interesting to note that the Spen's Committee found that, in the provision of full dentures, four appointments were generally taken to complete treatment, but in some cases "the trying-in stage is omitted."

(3) *Amalgam restorations.*

Fees assessment is strict. If one surface is involved, the fee is 15/- whether it be a simple pit and fissure cavity, or a fully extended and lined cavity. If the cavity involves two or more surfaces, the fee is raised to £1/2/6. Thus, in a premolar a DO and MO filling would return £2/5/- but an MOD would be worth only £1/2/6. If a lingual or buccal fissure on a molar is carried on to the occlusal surface, the fee is then £1/2/6, even though the preparation was quite a short procedure compared with a proximo-occlusal cavity.

(4) *Gold inlays.*

Prior approval is required for all gold work. Reasons for the provision of an inlay are accepted only if the condition is clinically necessary, and not merely to satisfy the patient's or dentist's desires. If a patient desires an inlay when an amalgam restoration would be clinically satisfactory, a special form allows the dentist to collect part of the fee from the Dental Estimates Board; the remainder, approved by the Board, is paid by the patient to the dentist.

(5) *Emergency treatment.*

This is the subject of a special form designed to save the dentist's time. Extractions or dressings are allowed for at 7/6 a patient. Several infringements have been reported where dentists refused to see patients for emergency treatment under the N.H.S. as their books were full, but could see them straight away if they came as private patients, that is, paid the dentist cash.

(6) *Denture repair shops.*

These shops exist in most areas and all manner of denture work that can be carried out short of actually dealing with the mouth itself is undertaken. Again the denture wearer has to pay, although the mechanics through their union are campaigning to have such repair shops under the scheme. Repair service under the N.H.S. is provided by the dentists in the usual way, but again there is sometimes a considerable delay in the actual repair process. The shops advertise "between meal repairs."

(7) *Multiple practices.*

The National Health Service has fostered the establishment of collective practices whereby several dental surgeons and mechanics work on the same premises and in the same practice. Generally these mass practices are owned by one man who employs several others on a salary or commission basis. These "commercial practices" are the ones that tend to eliminate non-profitable procedures from their operations as mentioned above.

Other features of the scheme include:—

*Superannuation.*

Every dentist now joining the N.H.S. has 6·8% of his remuneration withheld as a compulsory superannuation repayable at compound interest when he leaves the scheme.

*Drugs.*

Provision is made for prescription of drugs by the dentist for all the general requirements of everyday practice, including pre-medicaments, vitamin tablets, and penicillin. These are supplied at no cost to the patient at any N.H.S. pharmacy.

*Identity cards.*

Without the system of National Registration Identity Cards, which every resident in Britain possesses, the National Health Service could not exist. The

identity card allows the bona fides of each case to be ascertained. Forms are filed at the Dental Estimates Board at Eastbourne under the National Identity Numbers. When each of the 50,000,000 subjects in Britain eligible for treatment could require about five forms a year, each of which is stored away for cross reference, the nature of the filing systems can be imagined. At the Board, the ideal is to have a dental officer in charge of a number of clerks or checkers who deal with the estimate forms. The dental officers are too few; consequently many of the estimates are rejected or returned because they differ slightly from common practice.

*Terms of service.*

On joining the N.H.S. the dentist undertakes:—

- (i) To employ a proper degree of skill and attention.
- (ii) To provide and complete satisfactorily all the treatment necessary to secure dental fitness which the patient is willing to have.
- (iii) To provide proper and sufficient surgery and waiting-room accommodation, suitable equipment and instruments.
- (iv) To keep records of treatment provided.
- (v) To permit inspection of surgery and waiting room and to produce records at a mutually convenient time.

These terms are also linked with the Dental Board of the United Kingdom, as any dentist proved guilty of misrepresentation under the N.H.S. can be struck off the register. However without resorting to such an extreme measure, as payments run 6-8 weeks behind completion of work, any "fine" when the dentist is "found wanting in respect to his terms of service" can be withheld from fees owing.

The future holds promise of a stabilised scheme, but the prospect of further reductions in the fees is not being kindly received by the profession. In pre-war days 50% of the U.K. dentists earned less than £700, while a medical practitioner was in the £1,000-£1200 range. Under the Spens scheme it was desired to raise the average remuneration of the dentist, but not to the phenomenal extent that has happened when a dentist can gross £20,000 as was reported in the press. It was considered as a principle that dentists as a class, although working harder and longer now, should still earn £200 less than the equivalent family doctor. Steps are well advanced, says the "Times" to reduce this anomaly. Subsequent steps since this article was published have been announced in the new health estimates where dentists and opticians are to be subject to considerable cuts, while the medical profession is practically unaffected. The prospect is of a full-time salaried service in the not so distant future with a graded fee scale based on qualification and experience, removing the state whereby young graduate assistants earn more than senior lecturers and school dentists.

## TOOTH REPLANTATION

### A Case History

D. D. FREEMAN, D.D.S. (TOR.)

On May 12, 1950, the patient, a boy aged six years and two months, presented approximately six hours after knocking out his upper right central incisor which had only recently erupted.

The tooth was scrubbed, an opening was made into the pulp chamber and the nerve removed. The incisor was left in a 1:1000 aqueous solution of zephiran.

The socket was gently cleansed with saline and dusted with penicillin-sulphanilimide powder.



Fig. 1.



Fig. 2.



Fig. 3.

The root of the tooth had not fully formed, and the apical foramen was approximately five millimetres in diameter, the walls tapering to thin flakes. The root canal was swabbed with Oxpura liquid and filled with a flamed stick of gutta percha in Oxpura paste. The tooth was replaced in the socket and ligated to the adjacent teeth.

The patient received an anti-tetanus injection and the United Dental Hospital made a cast cap splint which was on for eight weeks. As an added precaution, three injections of 300,000 units of procaine penicillin were administered for the first three days.

After eight months the tooth is clinically identical to the neighbouring incisor in colour, alignment and firmness. Even the depth of the pocket is the same.

Eventual resorption of the root is anticipated, especially as the root has not much substance but, until then, it is acting as the perfect space maintainer and lends a normal appearance to the boy.

## DENTAL MATERIALS

### Current Notes (No. 7)\*

#### Quality of Gold Inlays.

An accurately fitting inlay requiring the minimum of finishing is the ideal of every practitioner. One factor which has recently received attention is surface roughness as distinct from gross surface flaws such as nodules, fins or porosity. Dr. Pomes, now of Guatemala, and his colleagues<sup>1</sup> used a surface analyser to assess objectively the surface finish in castings made under various conditions.

In connection with some work carried out at the Bureau of Dental Standards on behalf of the Faculty of Dental Science, Melbourne, a surface finish meter was used to estimate possible damage caused to tooth enamel by orthodontic cements. It proved to be a method of showing surface irregularities in a positive manner which could not be duplicated by purely subjective means. In the same way the usual visual or tactile methods may lead to false conclusions about the surface roughness of castings, and this should be borne in mind when considering the results obtained.

The authors concluded that, within the limits of their experience, the surface roughness of gold castings was not significantly dependent on the following factors:—

1. Composition of alloy.
2. Brand of investment. (Eight tested.)
3. Hygroscopic expansion.
4. Wax elimination method.

The surface roughness, however, was found to be affected by the following:—

5. Particle size and proportion of silica.
6. Thickness of mix.
7. Overheating the alloy.
8. Excessive casting forces.

One factor which has been found significant at the Bureau<sup>2</sup> is the temperature to which the mould is heated prior to casting. From the visual point of view the best surface finish was obtained by casting at low temperatures, and this is where the hygroscopic expansion technique may have a real advantage for with some investments it dispenses with the need for heating the investment to high temperatures. However, in the light of this new work on surface roughness some of our ideas may need revision as the eye now appears to be an unreliable judge of this property.

\*Contribution from the Commonwealth Bureau of Dental Standards.

1. Pomes, C. E., Slack, G. L. and Wise, M. W.—Surface roughness of castings: J.A.D.A., 41:545-56, 1950.
2. Docking, A. R. and Chong, M. P.—Hygroscopic expansion technique in dental casting, Part IV: Dent.J.Aust., 22:103-19, 1950.

It was also noted in the investigations at the Bureau<sup>2</sup> that surface finish did vary with the brand of investment. Pomes *et al.* tested eight commercial investments but found no significant difference. It would be of interest to repeat the Australian work using the surface meter instead of subjective methods of examination.

The conclusion regarding the effect of wax elimination method does not confirm the earlier findings of Ireland<sup>3</sup> who considered that burning out the wax resulted in a better surface than that obtained when aqueous methods were used.

Of the factors which the authors claim to affect surface roughness, three are in the hands of the practitioner or his assistant. The question of particle size and proportion of silica is one for attention by the manufacturer, but the use of a low water-powder ratio (thick mix) and avoidance of overheating of the molten alloy are precautions which should always be observed by the operator. An interesting factor usually overlooked is the magnitude of the force used to cast the gold into the mould. The authors claim that excessive forces are likely to roughen the surface irrespective of the type of casting machine used.

In another recent paper<sup>4</sup>, this time from England, is summarised the technique of casting of gold inlays by the direct method. In dental practice a thorough examination of castings should be made to ascertain whether there is any indication of the following faults which are listed after their probable causes:—

1. *Moisture in mould* (causes incomplete castings due to back pressure resulting from the generation of steam).
  2. *Incomplete elimination of wax* (causes incomplete castings with rounded edges; black or brown investment on the inlay with a distinct odour).
  3. *Insufficient pressure* (causes incomplete casting, one side cast well with blurring on the other).
  4. *Gold not sufficiently molten* (may result in no casting).
  5. *Overheating gold* (causes rough castings with a coating of plaster on the inlay which is very difficult to remove).
  6. *Overheating the investment* (causes feathers or fins on the inlay, the investment being easily removed).
  7. *Lack of a reservoir* (causes roughness and porosity).
  8. *Use of a poor alloy.* (If the gold has been recast too many times it may cause roughness or may lead to a "rotten" gold sprue).
- 
3. Ireland, J.—Vacuum investing and its relation to cast surfaces: B.D.J., 86:111-8, 1949.
  4. Ward, N. L.—Gold inlays by the direct method: B.D.J., 89:273-6, 1950.



# The DENTAL JOURNAL of AUSTRALIA

## EDITORIAL DEPARTMENT

### THE PROBLEMS OF PREVENTION

The dental profession is spending more and more time in attempts to bring about the acceptance of measures which will, in turn, cause a decrease in the appalling incidence of dental caries throughout the world. The members of the profession in Australia have not lagged in their efforts to assist in these very necessary reforms.

It has been amply demonstrated that the main way in which we can bring about a decrease in the incidence of caries is to seek the institution of voluntary changes in the diet without causing any variation in its nutritional standards. In the past, our major efforts have been directed at the members of the public in general. We know that the gradual dissemination of such knowledge would eventually bring about the desired result.

It is quite possible, however, that this method of attack is not the best. Undoubtedly, parents are the people who will have control of such voluntary changes in diet; but it may be wiser, firstly, to ensure that the co-operation of such groups as the members of the medical profession, dieticians, and similar professions, is assured, for the members of these professions have great powers through their intimate contact with the public in general—contacts which are often denied to the members of the dental profession.

It is very distressing, then, to find that the idea of intake of refined carbohydrates being a necessity is so ingrained that the *Journal of the American Medical Association* is prepared to accept double-page advertisements sponsored by the National Confectioners' Association, Council on Candy, in which, for example, is stated the view: "Candy—essential in military rations." It is just as distressing to find that "typical menus" set down for the Army diet include:—

For breakfast—crackers and jam and sugar.

For dinner—crackers, sweet chocolate bar, caramel nougat bar.

For supper—crackers, sugar, starch jelly bar, jam, chocolate coconut bar.

The *Journal of the American Medical Association* is, likewise, quite prepared to accept full-page advertisements from aerated cordial manufacturers, the

contents of whose products have been shown to be high in refined carbohydrate. It might be noted, too, that advertisements appear in the *British Dental Journal* advocating a glucose mixture to be fed to children, which is said "to build up the confidence of a child faced with instrumentation. This improved form of glucose therapy, once taken, is never refused!"

A diet designed to assist in the reduction of dental caries was recently submitted to one of the leading dieticians in Sydney. Although the diet was apparently adequate from a nutritional aspect, it was labelled "impractical and uneconomic."

Where, then, are we to start in this fight to assist the public to rid themselves of this disease? Obviously, a small profession such as ours cannot fight the world, particularly when the changes that we are desirous of bringing about are possibly looked upon unfavourably by the people who must practise them. Unless we can first of all persuade the medical profession, nutritionists, biochemists and, of course, all the members of our own profession that such changes are necessary and desirable, and unless we can present a concerted and co-ordinated effort through all such professions, our task would appear to be rather hopeless.

To the medical profession and their ancillary groups the problem of dental caries is only one of many diseases and therefore it possibly has received but scant attention from them. There is no doubt that if their interest is awakened and their co-operation sought they would assist in every possible way. Such a development might well be worthwhile before we continue to expend our energies in attempting to convert the layman.

## Correspondence

### "THE AUSTRALIAN SOCIETY OF ORTHODONTISTS"

Sir,

In order to obviate any misunderstanding over the advent of a second Orthodontic Society in Australia, we have thought it advisable to set out briefly the history of the Australian Society of Orthodontists first formed in Melbourne on 26th August, 1927, during the progress of the Sixth Australian Dental Congress. At that time Dr. W. Stanley Wilkinson was elected President and Dr. J. Wunderly, Honorary Secretary-Treasurer.

The second meeting was held on 10th July, 1930, in Brisbane on the occasion of the Seventh Australian Dental Congress and Dr. Edmund C. Gates was then elected President with Dr. A. Thornton Taylor as Secretary-Treasurer.

During these early formative years, the functions of the Society were limited to constitutional matters and the establishment of accreditation through component societies throughout the world. Fisher (Orthodontic Directory of the World) was advised of the Society on 21st August, 1927, and the Society was subsequently accepted for listing in his Directory. The Society was accorded the privilege of naming Honorary Presidents, Drs. Wilkinson and Gates respectively, for the 2nd International Orthodontic Congress in London in 1931.

Under its constitution at that time, members of the Society found difficulty in meeting, with the result that eventually, particularly with the advent of World War 2, and the cessation of Congresses, the Society went into recess.

At the first post-war Congress in Perth, the initial steps were made to reconstitute the Society with the result that formal meetings took place during the 12th Australian Dental Congress in Sydney last August, when the Society was re-formed under the Presidency and Secretary-Treasurership respectively of the undersigned, with Drs. K. T. Adamson, V. P. Webb, and R. W. Halliday, elected as Councillors. At this date all eligible active orthodontists in Australia are members.

Associate membership may be granted to a dentist who is practising orthodontics in general practice with a view to specialising, or who maintains an active interest in orthodontics. Such associate memberships carry all the privileges of membership except that of voting at meetings, and applications may be made to any officer of the Society.

Accreditation has been sought and obtained from overseas orthodontic societies and it is anticipated that the Australian Society of Orthodontists will now be able to continue to function as an active and progressive orthodontic society.

Yours faithfully

A. THORNTON TAYLOR, President.

ROBERT Y. NORTON, Hon. Sec.-Treasurer.

## News and Notes

### AUSTRALIAN DENTAL ASSOCIATION STANDARDS COMMITTEE

#### List of Certified Dental Materials, June, 1951.

The Standards Committee of the Australian Dental Association presents to the profession the second and amended list of accredited dental materials. In doing so, it would urge members of the profession to consult the list, when buying their supplies, covered by the standards promulgated to date.

It is now twelve months since the original list was issued and the accreditation scheme put forward by your Association came into being. Whilst no new group of materials appears in the lists, much work has, and is being, done to bring to the final stage specifications for several other groups, e.g., impression plaster, laboratory plaster and modelling compound, and it should only be a matter of months before these materials will be appearing in supplementary listings. Of the materials already listed, check testing of samples purchased on the open market has been carried out, and the Committee is constantly on the alert to see that all requirements undertaken by manufacturers in accepting accreditation are fully complied with.

The Committee would like to record the whole-hearted co-operation it has had from the manufacturers of dental materials in the carrying out of its duties, and it feels that great benefit to both the profession and the trade is being derived from these efforts.

#### CERTIFIED DENTAL MERCURIES (A.D.S. No. T1) :—

Mercury.	Manufacturer or Distributor.
A.D.P. Mercury	Mitchell Dental Supplies.
Ash Chemically Pure Mercury	Amalgamated Dental Co. Ltd.
Bosch Mercury	Bosch Naylor Pty. Ltd.
Glover & Goode Dental Mercury	Glover & Goode Pty. Ltd.
M. & B. Mercury, B.P. Redistilled	May & Baker (Aust.) Pty. Ltd.

#### CERTIFIED DENTAL AMALGAM ALLOYS (A.D.S. No. T2) :—

Amalgam Alloy.	Manufacturer or Distributor.
Baker's Aristaloy	Baker Platinum, Ltd., London. (N.I.A. Investments, Pty. Ltd.)
Bosch Alloy	Bosch Naylor Pty. Ltd.
Bosch 70% Alloy	Bosch Naylor Pty. Ltd.
Crompton Alloy (67%)	Crompton Dental Products.
Crompton 70% Alloy	Crompton Dental Products.
F. & G. 70% Alloy	Felton Grimwade Dental Co.
G. & G. 70% Alloy	Glover & Goode Pty. Ltd.
G. & G. Quick Setting Alloy (Standardised)	Glover & Goode Pty. Ltd.
Jendent 68 Alloy	John T. Jennings Pty. Ltd.
K. & L. Alloy	Kemp & Liddell Pty. Ltd.
Premodent Alloy	Milne Browne & Co. Ltd.
"Six Eighty" Dental Alloy	Garrett, Davidson & Matthey Pty. Ltd.
Solila Alloy, Quick Mixing	Amalgamated Dental Co. Ltd.

**CERTIFIED ZINC PHOSPHATE CEMENTS (A.D.S. No. T3):—**

Cement.	Manufacturer or Distributor.
Dalton's Zinc Cement	The Dalton Chemical Co.
De Trey's Cement	Amalgamated Dental Co. Ltd.

**POSTGRADUATE COURSE**

**Institute of Dental Surgery (University of London).**

A postgraduate course of nine months' duration, intended primarily for candidates preparing for the Primary and Final examinations of the Royal College of Surgeons of England for the Fellowship in Dental Surgery, will commence on 1st October, 1951, and on 7th April, 1952. In addition to clinical practice at the Eastman Dental Hospital, which will cover all aspects of Dental Surgery, the course will include lectures and demonstrations given at the Royal College of Surgeons of England in Anatomy, Physiology and Pathology and at the Institute of Dental Surgery in dental subjects. The fee for the course will be £60. The class will be limited in number and applications should be made, before 1st August, 1951, or 1st February, 1952, to the Dean, Institute of Dental Surgery (University of London), Eastman Dental Hospital, Gray's Inn Road, London, W.C.1., England, stating qualifications and subsequent appointments.

**UNIVERSITY OF WESTERN AUSTRALIA**

Following on Professor Bradlaw's report, the Dental Executive Committee of the General Medical Council, London, has accorded general recognition to the dental degrees of the University of Western Australia by passing the following resolution on behalf of the Council:

"That the degrees of Bachelor of Dental Science (B.D.Sc.), Master of Dental Science (M.D.Sc.), and Doctor of Dental Science (D.D.Sc.), granted by the University of Western Australia be generally recognised for the time being by the Council under sections 8 and 10 of the Dentists Act, 1878, as entitling their holders, on fulfilment of the conditions prescribed by section 8 of the Act, to be registered as Colonial dentists in the Dentists Register."

The degrees covered by the foregoing resolution are degrees granted on or after 27th November, 1950.

**UNIVERSITY APPEAL RECEPTION**

The Sydney University Women's Union has arranged a late afternoon Reception to be held at the Great Hall, University of Sydney, on Friday, 21st September, 1951, from 5.30 p.m. to 7.30 p.m. This party is to be the Women's Union contribution to the University Appeal and is sponsored by the Appeal Committee.

Admission is by card only, and these may be obtained at 12/6 each from the Booking Secretary for the Reception, c/o. Manning House, University of Sydney, before 24th August, 1951.

### DENTAL BOARD OF NEW SOUTH WALES

The triennial poll for the election of four dentists to the Dental Board of New South Wales by dentists registered in New South Wales was held on Wednesday, 27th June, 1951. The successful candidates on the occasion of this poll were:—

Dr. J. S. Baird, Mr. N. E. Edney, Dr. A. G. H. Lawes, Dr. E. R. Magnus.

### CONFERRING OF HIGHER DEGREES

At the Conferring of Degrees Ceremony held in the Great Hall, University of Sydney, on Saturday, 19th May, 1951, the following members of the profession were admitted to the degree of Master of Dental Surgery:—

Broadbent, Brian Gordon, B.D.S.; Hull, Susan Mary, B.D.S.; Levine, Sydney, B.D.S.; Oliver, Leslie Phillip, B.D.S.

Our congratulations are extended to these recipients.

### DENTAL JOURNALS REQUIRED.

Copies of the January, February and March, 1951, issues of the *Dental Journal of Australia* have unexpectedly run short and any members who no longer require these issues are earnestly requested to forward them to the Office of the Association.

### POSITION VACANT

**Eastman Dental Hospital and Institute of Dental Surgery  
(University of London).**

Applications are invited from Dental Practitioners for the post of part-time Junior Clinical Assistant for a period of one year from 1st October, 1951, or 7th April, 1952. Holders of these posts will have the privilege of attending all the lectures and demonstrations arranged by the postgraduate Institute of Dental Surgery and the Royal College of Surgeons of England for candidates preparing for the Primary and Final examinations for the Fellowship in Dental Surgery of the Royal College of Surgeons of England. To be eligible for appointment, applicants' names must be on the Dentists' Register of the Dental Board of the United Kingdom. Preference will be given to persons who have held a previous House appointment. Salary: £350 per annum. Applications should be made, before 1st August, 1951, or 1st February, 1952, to the Director of the Hospital, Gray's Inn Road, London, W.C.1., stating qualifications and subsequent appointments together with the names of two referees.

### CHAIR OF DENTAL PROSTHESIS, UNIVERSITY OF MELBOURNE

Applications are called for the Chair of Dental Prosthesis in the University of Melbourne. Salary—£2,202 (including present cost of living allowance of £102).

Full details can be obtained from the Registrar, University of Melbourne, Carlton, N.S., Victoria; the Dean of the Dental School, 193 Spring Street, Melbourne, C.1.; or the Registrars of Australian and New Zealand Universities.

Applications for the vacant Chair must be sent to the Registrar, University of Melbourne, Carlton, N.S., Victoria, Australia, to reach him by 31st October, 1951.

**DEPUTY DIRECTOR OF CHILD HEALTH (DENTAL),  
Department of Health, Victoria.**

Applications, addressed to the Secretary to the Public Service Board, Public Offices, Treasury Place, Melbourne, C.2., and accompanied by evidence of experience and qualifications and a statement of date and place of birth, are invited for the abovementioned position up to Friday, 10th August, 1951.

*Yearly salary: £1,684, minimum; £1,834, maximum. (Including cost of living adjustment.)*

*Duties:* Under the Chief Health Officer to undertake the organisation and to have the general direction of the dental services of the Department in respect of school and pre-school children. The services will consist of dental services in Metropolitan and Provincial Areas and mobile units in rural areas. To carry out such clinical duties as may be necessary therewith.

*Qualifications:* To be a dental practitioner registered in Victoria, with the degree of Master of Dental Science or its equivalent. To be an experienced administrator and organiser.

*Note:* Preference will be given to candidates not over the age of 45.

**NOTICE TO PROSPECTIVE GRADUATES**

Due to a member of our staff going overseas to gain additional experience, we have a vacancy for a Surgeon Dentist, and applications are invited for such position.

The position offers opportunity for wide experience and scope for advancement.

Applications should be addressed to:

The Secretary,  
Broken Hill Mines' Dental Clinic,  
P.O. Box 375,  
Broken Hill.

**FOR SALE**

Large level building block, shop site 43' x 150'. Excellent position for dentist's residence and surgery. Corner block in business centre. Fronts main road, with access for surgery and car in side road. Growing district, Northern Suburbs. Price £850. Telephone XL 3112.

Vacant newly-built professional rooms available in Crow's Nest for dentist desiring to commence practice. 'Phone XY 1241.

## Association Activities

### REVIEW OF ASSOCIATION ACTIVITIES FOR FIRST SIX MONTHS OF 1951

To date the membership of the Association has increased to 1,175, and during 1951, 59 Fourth Year students in the Faculty of Dentistry of the University of Sydney have been accepted as student associates.

Very well attended general meetings of the members were held in the months of March, April, May and June, and most interesting and instructive lectures were given by Dr. R. N. McMullin (Plastics in Operative Dentistry), Professor W. J. Tuckfield (Full Denture Prosthesis), Dr. A. G. H. Lawes (Norsk Orthodontic Appliance) and Professor A. J. Arnott (Oral Diagnosis and Treatment). These lectures will be published in the *Dental Journal of Australia* in due course for the information of members unable to attend the meetings. An interesting programme has been arranged by the Syllabus Committee for the balance of the year, and this will include the delivery of the first Annie Praed Oration by Professor Arnott in October, when the Great Hall of the University of Sydney has been made available for the occasion.

Many meetings of the country divisions of the Association have taken place during this six months period and four of these divisions have been officially visited by Officers of the Association. Eleven clinicians have visited various divisions during the six months to lecture on various subjects to members, and considerable use has been made of the tape recorder recently acquired by the Association and of films in these divisional visits. The Association is indebted to the lecturers and clinicians who have so willingly contributed their services.

A useful addition to the presentation of lectures and clinics has been the purchase by the Association of an Aldis Projector to show 2 ins. square slides. This provides the Association with two projectors to show the two sizes of slides in general use, and this new projector is a particularly fine machine.

At the general meeting of the Association held on 24th April, 1951, the matter of the candidates to be endorsed by the Association in the triennial election of four dentists to the Dental Board of New South Wales was discussed. It was decided by this meeting that six members should carry the endorsement of the Association in this regard and the meeting selected by ballot six members whose names were circularised to members of the Association. It is pleasing to note that four of these six members were the four successful candidates at the poll held on 27th June last, viz., Dr. J. S. Baird, Mr. N. E. Edney, Dr. A. G. H. Lawes and Dr. E. R. Magnus.

During 1951 two changes in the secretarial staff of the Association were made. Mr. E. F. Hewlett took over his appointment as Secretary in place of Mr. R. Harris as from 1st January of the year, and Miss H. E. Harrington was appointed Assistant Secretary of the Association, replacing Mrs. McLean as from 5th March, 1951.

Five issues of the *Dental Journal of Australia* have been published during the first six months of 1951. Mr. H. R. Sullivan was appointed Honorary Editor of the Journal to succeed Mr. R. Harris and kindly consented to undertake these duties. The high standard of the Journal has been maintained, despite marked increases in publication costs, and it is interesting to note that during the last few months several compliments on the standard of the Journal have been received from distinguished overseas authorities.

The Journal Committee have been very active during this period, as the publication of the Journal in face of rising publication costs has required much attention. To maintain the standard of our Journal in spite of such difficulties, it has been necessary to publish bi-monthly issues in May-June and these will be continued while conditions remain as at present. An increase has been made in advertising rates which, however, does not overcome all of our difficulties. A change of set-up in the Journal is also being considered to assist in this regard.

Further additions have been made to the Hardwick Memorial Library in the acquisition of twelve new textbooks and regular issues of three additional Journals. The Library at the present moment has over 300 textbooks available for reference or loan and receives 90 different Journals, both local and overseas, which are available for reference within the Library. In addition to these, articles taken from duplicate copies of Journals are compiled into a package library in which form they are available for borrowing.

The Hardwick Memorial Library has been assisted greatly by gifts from Mrs. P. A. Ash and Mrs. Harvie, of books from their late husbands' libraries. An unfortunate accident to the water system of the building resulted early this year in some substantial damage to the Library. The books are now being repaired, however, and the damage is adequately covered by insurance.

The Dental Health Education Department of the Association during the last six months has progressed considerably with its existing projects and with its plan to widen the scope of its activities through the country divisions. A review of the Department's activities has been forwarded to each division for the information of the Dental Health Committees which each division has elected, and it is hoped that in this way the activities relating to dental health education will be extended throughout the country areas of New South Wales to a greater degree than prevails at present.

The Department has received from the printers the first 8,000 of 40,000 copies of "Healthy Mouths," and this booklet is again available to members free for distribution to their patients, together with the following literature on oral health:

"Oral Hygiene"—a pamphlet provided free for distribution to patients.

"Your Baby's Teeth and Your Own"—a booklet on pre-natal care, also available free.

"Toothbrush Technique"—a pamphlet to be used in conjunction with "Oral Hygiene," available to members for distribution to their patients, at 10/- per 100.

"The Use and Care of Artificial Dentures" is a booklet available to members at the cost of 2/6 per dozen.

The usual Dental Health Essay Competition arranged in the State and Catholic Schools will take place during September of this year. Lectures have been given during the last six months to the trainees in the Tresillian and Karitane Mothercraft Homes and to the trainees at the Royal North Shore Hospital, and numerous lectures have been given by spokesmen of the Department to Parents and Citizens' Associations, Mothers' Clubs and other organisations interested in the question of dental health. The Dental Health Education Department is indebted to the Dental Board of New South Wales for its generous donation of £400 to be used for the purpose of dental health education.

During 1951 Mr. B. Lilienthal, Walter and Eliza Hall Trust and Australian Dental Association, New South Wales Branch, Research Scholar, has had the support of the Association in the payment of £300 towards his regular salary for the year 1951. At the request of the University of Sydney, the Research Committee and the Executive of the Association considered the matter of an additional grant to Mr. Lilienthal to enable him to continue his studies at Oxford University, as expenses entailed in these studies had risen beyond those originally provided for. In this regard a further sum of £A350 was forwarded to the University of Sydney, for it was felt that, from reports on Mr. Lilienthal's work and the usefulness to dental research of the training he is receiving, our support of him in this matter is fully warranted.

The Benevolent and Provident Fund has benefited considerably during the year from donations of waste amalgam by members of the Association, and the Committee takes this opportunity of again thanking all members who contributed.

The Chairman of the Dental Standards Sub-Committee in New South Wales, Mr. Ashley Hunter, has given much attention to matters dealt with by this Committee.

One of the Association's main functions—the provision of defence and public risk insurance benefits—has been provided in many cases.

During these six months the Committee appointed to revise the Articles of Association have worked hard and certain changes in the matter of membership and allied questions are now nearing completion. It is hoped that before the end of this year this Committee will have completed the revision of the Articles. It is proposed immediately to make provision for forms of membership, other than those existing at the present moment, which are deemed necessary due to changes within the dental profession over recent years.

The Association has been active in industrial matters during 1951. One of the main actions in this regard was the application for the de-registration of the Dental Prosthetists' Association of New South Wales before the Industrial Commission, which action was instituted in the middle of 1950 and the hearing of which was completed in March, 1951, before Mr. Justice Webb. For the full understanding of matters involved in this application, members are referred

to the article appearing in the Editorial Department of the May-June issue of the *Dental Journal of Australia* where, in addition to the outline of the occurrences which led to this application, the full judgment of Mr. Justice Webb in the case is published. The necessary procedures arising from this judgment have now been concluded.

Your Association has been represented at all meetings of the Dental Mechanics (State) Conciliation Committee, the Dental Mechanics Apprenticeship Council and the Dental Attendants and Secretaries (State) Conciliation Committees held during this six months.

Notices of variations in the Awards concerning dental employees have been regularly forwarded to members and information on general conditions of practice, such as electricity restrictions, etc., have been circulated from time to time. With the difficulties arising from practice conditions at the present moment, the Offices of the Association have been actively engaged in assisting individual members in the solution of many of these problems.

Many matters of national and general import have been referred to the Federal Office of the Australian Dental Association by this State Branch. These include the matters of Pharmaceutical Benefits Act, repatriation dental treatment, shortages in dental supplies and equipment, the registration of migrant dentists, the question of the revised Federal Constitution, the International Dental Congress in 1952 and other matters, reports on which appear in the Federal Newsletters published in the *Dental Journal of Australia* from time to time.

The Sports and Social Committee have been active during the year and arranged the participation of the dentists in the annual Doctors vs. Dentists Cricket Match held early in the year, which resulted in the retention of the shield by the dentists. An invitation has been extended to members of the Queensland Branch for a return sporting visit and arrangements for the Association's Sports Day to be held at the Lakes Golf Club on 2nd August are well in hand.

The Executive has met on six occasions and the Committee of the Honorary Officers on six occasions to deal with the general affairs of the Association. During these six months the resignation from the Executive of Mr. H. R. Sullivan was accepted with regret, this being due to his impending departure overseas as he is the recipient of a Nuffield Travelling Scholarship. The Association is indebted to Mr. Sullivan for his attention to Executive and Committee matters in the past and to his present attention to his duties as Honorary Editor of the *Dental Journal of Australia*, and congratulations and best wishes have been conveyed to him upon the receipt of his scholarship. Mr. Sullivan's place on the Executive was filled in the appointment of Mr. J. G. Fletcher.

The many Committees appointed by the Executive to attend to details of the Association's activities have met consistently during the last six months and have materially assisted the Executive Committee of the Association in its deliberations.

This brief review has covered, as far as possible, matters in which such a stage of finality has been reached to enable report. It is proposed to issue a further review in three months when matters, both general and confidential, now under consideration, can be reported.

## AUSTRALIAN DENTAL ASSOCIATION FEDERAL NEWSLETTER No. 3

The Federal Executive met on 7th April, 1951, and I would like to report in brief form on the principal matters discussed, in order to keep you fully informed on Federal matters.

### Appointment of Honorary Treasurer.

Colonel H. McD. Finnie had replied regretting his inability to accept the appointment. In accordance with Section 6 of the Constitution, Dr. A. G. Rowell of Sydney was unanimously appointed Honorary Treasurer, and he was invited to join the meeting and welcomed to the Federal Executive.

### Pharmaceutical Benefits Act.

Copies of the Act (1947) and the Amendments (of 1949) were tabled and it was pointed out that the present Minister for Health has implemented his plan by Regulations under Section 23 of the legislation passed by the previous Government. The Act provided for prescription by "medical practitioners" and a further amendment would be required to enable dentists to participate. When the Bill was before the House the B.M.A. had announced its strongest opposition to the measure, and in view of such this Association had not sought the inclusion of the dental profession at that time.

The serious, if surmountable, difficulty of obtaining Cabinet approval to introduce amending legislation was discussed. It was fully recognised that as a principle Governments take the strongest objections to revising legislation, on the ground that the proper time to raise the requirements of any section of the community is at the time the bill is being read, and not after the measure has received the approval of both Houses.

The Federal Executive decided to inform State Branches that further representations have been made to the Minister for Health, who had refused to consider amending the Act under existing political conditions. After the election early and further representations will be made to the Minister to press the intense importance of the matter.

### Presentation to Retired Officers.

Favourable replies having been received from all State Branches, except Queensland, it was resolved that suitably framed addresses of appreciation be obtained for presentation.

### B.D.A. Annual Meeting—Nomination of a Representative.

After careful consideration of the nominations submitted by State Branches, Mr. George Finlay, O.B.E., B.D.Sc., L.D.S., of Melbourne, was selected to represent the Association.

### Director of Dental Services, C.M.F.

The President reported that in accordance with the decision of the Annual Meeting, 1948, further representations had been made to the Adjutant-General regarding this appointment and he felt sure that the Military Board would give the fullest consideration to the representations made in recent months.

(Subsequent to the meeting, Army headquarters has announced that Colonel H. McD.Finnie, O.B.E., E.D., has been appointed Director of Dental Services, C.M.F., in succession to Brigadier J. E. Down, C.B.E., E.D., and promoted to the rank of Brigadier.)

### Capitation Fees.

The Honorary Secretary reported that all Branches, with the exception of Queensland, had forwarded capitation fees as required in terms of Section 11 of the Constitution, as follows:—

N.S.W. Branch, 1,106 members, £232/-; Victorian Branch, 606 members, £169/10/-; S.A. Branch, 190 members, £71/5/-; W.A. Branch, 173 members, £64/17/6; Tasmanian Branch, 48 members, £18/-.

### Repatriation Dental Treatment.

The Chairman reported that, at the request of the Repatriation Department, he and the Honorary Secretary had met in conference with Mr. Cyril Smith, Deputy Chairman of the Repatriation Commission, and Dr. Willis, Senior Medical Officer for

New South Wales, on 9th March, 1951. At that conference the representatives of the Repatriation Department outlined their plans for providing treatment to a greatly expanded personnel. Dr. Hall Best reported that he had advised the representative of the Commission that, in view of the rapid rise of practice costs, the Federal Officers could not indicate whether or not at this stage the scale of fees, i.e., as approved by the Department of the Treasury (Defence Division) in March, 1950, would be acceptable to the Branches. Subsequently, a letter dated 5th April, 1951, with enclosures, from the Chairman of the Repatriation Commission was received, from which it was apparent that the Commission had proceeded to launch its scheme without further reference to the A.D.A. It was resolved that the members of the Federal Executive express in strong terms disapproval of this action.

It was further resolved that the Vice-Presidents arrange a conference with the Chairman, Repatriation Commission, at an early date, to discuss the matter further, and following this conference copies of the Repatriation Commission letter of 5th April, 1951, be forwarded to all State Branches, with any additional information, for early comments.

#### Constitution Redraft.

The amended Constitution was submitted and approved and it was agreed to distribute copies to the Branches for comment.

Yours faithfully,  
J. V. HALL BEST,  
President.

### NEW SOUTH WALES BRANCH EXECUTIVE MEETING

Extract from the Minutes of the Meeting of the Executive Committee held in the Council Room, B.M.A. House, 135-137 Macquarie Street, Sydney, on Monday, 14th May, 1951, at 7.30 p.m.

*Present:* Dr. E. R. Magnus, President, in the Chair; Dr. A. G. H. Lawes, Vice-President; Dr. F. E. Helmore, Vice-President; Mr. F. R. Reid, Honorary Treasurer; Mr. N. E. Edney, Dr. E. H. Bastian, Mr. H. M. Finnie, Mr. W. A. Grainger, Mr. R. Krauss, Mr. R. G. Leeder, Mr. R. Tompson, Mr. R. W. Wilson, Mr. A. G. Hunter, Mr. J. G. Fletcher; Mr. C. Reynolds, Newcastle and Hunter River District Division; Dr. J. D. Oddy, South Coast Division; Dr. A. G. Rowell, Western Division.

*Apologies:* Mr. R. Y. Norton, Mr. E. J. Gee, Mr. M. J. Griffin.

*In attendance:* Mr. E. F. Hewlett, Secretary.

*Minutes:* The Minutes of the Meeting held on 9th April, 1951, were signed as a correct record subject to two minor corrections.

#### Business Arising from the Minutes:

*Dental Prosthetist matters:* The Secretary reported that, subsequent upon the judgment by Mr. Justice Webb, certain changes had been made in the name and rules of the Dental Prosthetists' Association of New South Wales. Following upon these changes, His Honor, Mr. Justice Webb, proposed to deal, on Wednesday, 16th May, with this matter and also the matter of the Dental Mechanics (State) Award.

*Forms of membership:* The President stated that the Committee appointed to deal with the change of Articles had considered the matter of forms of membership and the proposed alterations to the Articles would now be forwarded to the Association's solicitors for opinion.

#### Business of the Meeting:

*Federal Office:* The revised Federal Constitution was considered by the Executive and certain suggestions were made to the Federal Body concerning alterations to same.

#### Reports from Committees:

*Journal Committee:* Following upon discussions as to Journal Matters, the Chairman of the Journal Committee reported that the Committee recommended to the Executive that the May-June and July-August issues of the Journal be combined into two issues only and that Mr. J. W. Skinner and Dr. J. H. Wilson be asked to act as Honorary Editors of the Journal for the issues immediately after the retirement of the present Honorary Editor, Mr. H. R. Sullivan, from that position due to his impending trip overseas.

**Research Committee:** A report was received from the Research Committee concerning the grant of additional financial assistance to Mr. Lilienthal, Research Scholar at present at the University of Oxford, and the Executive decided to assist Mr. Lilienthal in this matter by the grant of £350 (Aust.) from the Research Fund.

**Dental Health Committee:** The Chairman of the Dental Health Committee reported on matters dealt with by his Committee. The Report was received and permission was granted for lectures and articles arranged by that Committee.

**Sports and Social Committee:** A report from the Sports and Social Committee was received indicating that the Committee recommended that the fees for the Association's Sports Day to be held on 2nd August, 1951, at the Lakes Golf Club be one guinea. This report was adopted and a grant was made towards Sports Day expenses.

**Committee on the Annie Praed Oration:** The Chairman of this Committee reported that Professor Arnott had consented to deliver this oration and that the University had made the Great Hall available for a suitable evening in October.

**Membership:**

**New members:** It was resolved that the following dental practitioners whose applications were in order and who had paid the requisite subscriptions be admitted as members of this State Branch as from 14th May, 1951:—

Annets, Allan Charles, B.D.S.; Armstrong, Robert F., B.D.S.; Baer, Leopold, B.D.S.; Christy, Adrian de Horne, B.D.S.; Ellerton, Deryk Maxwell, B.D.S.; Howe, Richard MacDonald, B.D.S.; Lindsay, James William, B.D.S.; Moloney, Ian Grant, B.D.S.; Maguire, Derek William, B.D.S.; Martin, Jack Oliver, B.D.S.; McKenzie, Robert Keith, B.D.S.; Parmeter, Kenneth Thomas, B.D.S.; Sizer, Keith William, B.D.S.; Sengelman, Miss Betty M., B.D.S.

**Student Associates:** It was resolved that the following fourth year students in the Faculty of Dentistry, University of Sydney, who have made application and paid the requisite subscriptions, be accepted as Student Associates of this State Branch as from 14th May, 1951:—

Chapman, Arthur Robert; Heffron, William Donald; Mills, Keith McLennan; Sanders, William Frank; Smith, Neville Henry Hedges; Boguslawski, H.

**Correspondence:**

Letters were received from the Registrar of the Dental Board, stating that the Board has granted £400 to the Dental Health Education Department of the Association, and from the Walter and Eliza Hall Trust, indicating that the Trust could not continue its grant to the Department for this year.

A letter was received from Dr. A. G. H. Lawes, offering a copy of his thesis to the Hardwick Memorial Library. Dr. Lawes' offer was accepted with thanks.

**Financial Statement:**

The Honorary Treasurer, Mr. F. R. Reid, tabled the Financial Statement for the month of April, 1951, which had been circulated to members of the Committee.

It was resolved that the Financial Statement for the month of April, 1951, be received.

**General Business:**

**Conjoint Meeting of Divisional Delegates and Executive:** The matter of the Conjoint Meeting of the Divisional Delegates and the Executive was considered and fixed for a suitable date early in July.

**Closure of meeting:** The meeting terminated at 12 o'clock midnight.

## GENERAL MEETING

Extract from the Minutes of the General Meeting held in the Lecture Hall, B.M.A. House, 135-137 Macquarie Street, Sydney, on Tuesday, 22nd May, 1951, at 8 p.m.

**Present:** Dr. E. R. Magnus, President, in the Chair, and an audience of 80 members and visitors.

**Minutes:** The Minutes of the Meeting held on Tuesday, 24th April, were read and signed as a correct record.

**Lecture:** The Chairman introduced Dr. A. G. H. Lawes, who delivered an interesting lecture entitled, "An Outline of the Norwegian System of Orthodontic Treatment."

At the conclusion of the lecture, Dr. A. Thornton Taylor opened the discussion, to which discussion Dr. A. G. Rowell, Mr. R. Y. Norton and Dr. R. Halliday contributed.

A vote of thanks to Dr. Lawes for his lecture was moved by Mr. C. C. Croker and carried by acclamation.

The meeting terminated at 10.20 p.m.

## New Books and Publications

**Oral Pathology**, by Kurt H. Thoma, St. Louis, 1950. 3rd edition. The C. V. Mosby Company. Price £9 4s. Od. *Our copy by courtesy of W. Ramsay (Surgical) Pty. Ltd., Melbourne.*

The third edition of this excellent reference book might almost be called an encyclopaedia of oral pathology, 250 pages having been added to incorporate much new information. However, as the author states, in the last few years a vast amount of new work has been carried out in this field, necessitating a thorough revision in order to give an adequate interpretation of "the essence of professional progress." He has done this in an admirable fashion and as well as increasing the subject matter has reorganised many of the chapters to facilitate the joint use of this volume with his other work "Oral Surgery."

The first part of the book covering many aspects of experimental oral pathology continues to provide a useful and up-to-date guide to those particularly interested in work which has been the basis of much of the progress in knowledge of oral disease. The collection of the material in one section instead of spreading it throughout the text is a feature which might well be followed by other authors.

Two new sections add to the value of the book. The chapter on blood diseases is prefaced by a summary of the causes of haemorrhage and the mechanism of coagulation. Part VIII, Diseases of the salivary and mucous glands, commences with a review of the properties of saliva.

Focal infection is not given as prominent a place as in earlier editions and the author is prepared to admit that so-called foci of infection are not universally considered to be the cause of every disease the aetiology of which would otherwise be obscure.

Treatment is still featured in most chapters, this being the main defect of the book. It could well be omitted and dealt with more fully in other works by the author so that this one might remain true to its title.

Another minor defect is the inclusion of some poor colour photomicrographs. However, many of those appearing in the first and second editions have been discarded and on the whole the illustrations are good.

"Oral Pathology" provides an authoritative source of information on most aspects of the diseases of the mouth. While not meant as a constant companion in the surgery, it might well be included in the library of the dentist who wishes to widen his view beyond the routine of everyday practice.—D.A.C.

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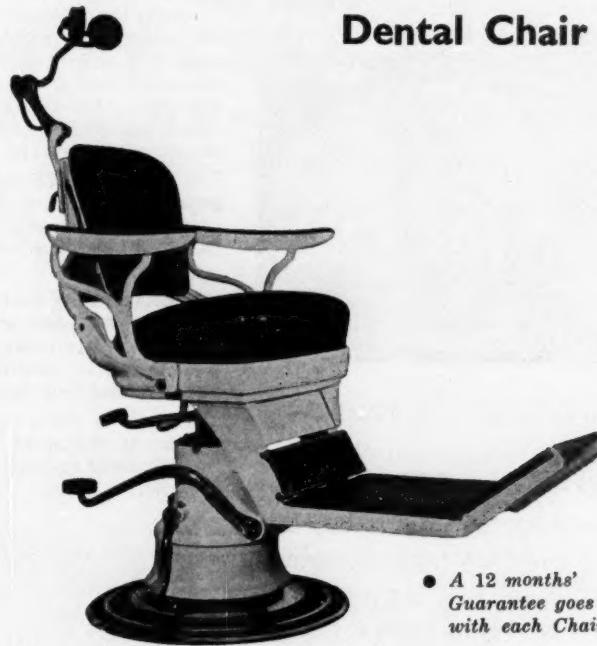
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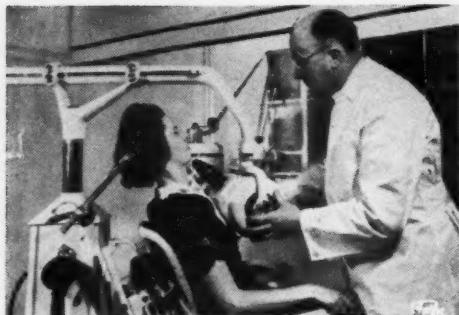
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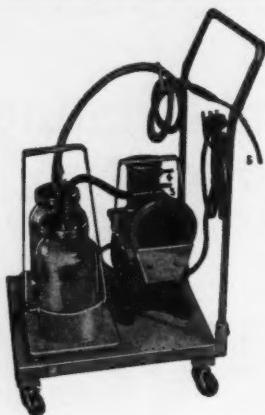
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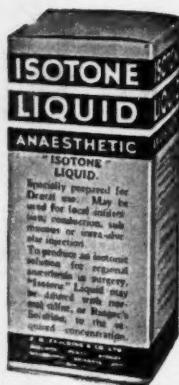
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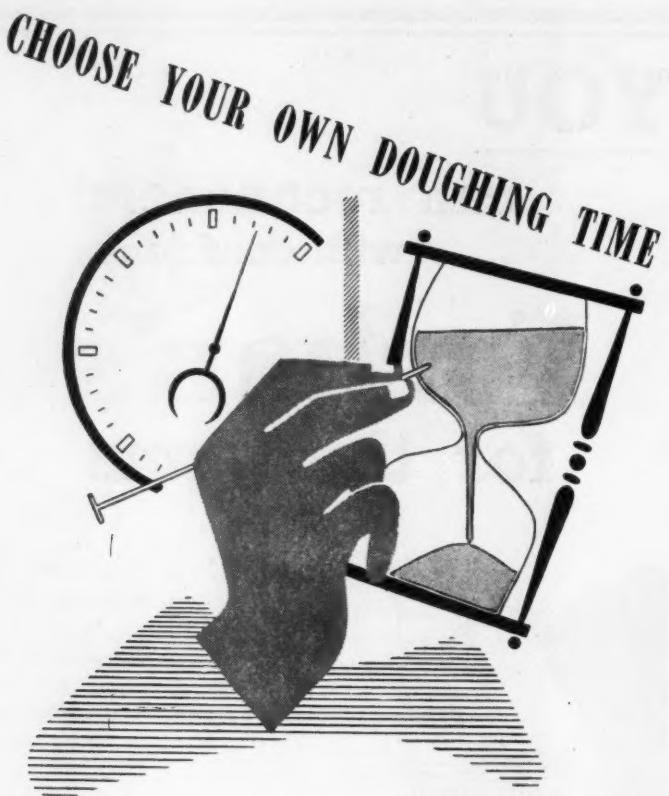


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- (1) Kramer, B, et al — Am. Dis. Child. 73, 543 (1947).  
(2) Lewis, J. M. et al — J. Pediatr. 31, 496 (1947).

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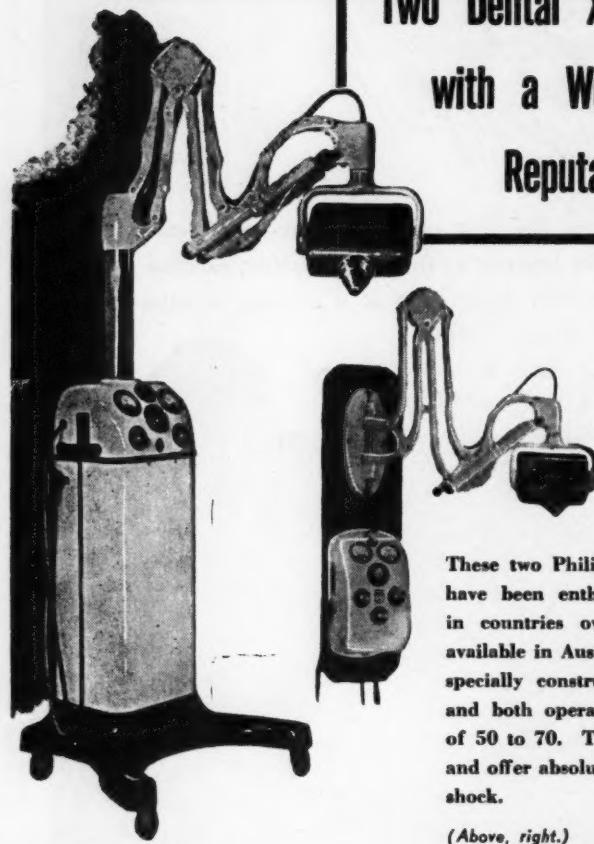
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"Trilene" Brand of Trichloroethylene

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*For Anaesthetic or Analgesic*

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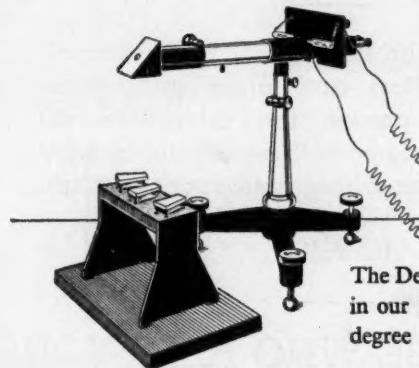


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( $1/50,000$  part of an inch)



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For your protection every batch of  
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'Solila' Alloy is available in 2 types—

**NORMAL and New QUICK MIXING FORMULA**

In both forms 'Solila' Alloy meets the requirements of  
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**FOR ENDURING AMALGAM RESTORATIONS**

*Both types supplied in 1 oz. and 5 oz. bottles*

*Originators: De Trey Frères, S.A. Zurich*

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All members of the New South Wales Branch of the Association and other subscribers are asked to peruse the advertisements herein and to support those dental supply houses and others whose announcements are published in "The Dental Journal of Australia."

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You devote so much time and care to the making of a denture

After all the trouble, time and care you expend on making a denture, make sure the patient gives it the correct care it deserves.

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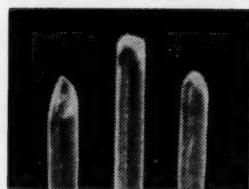
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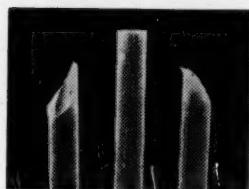


**Smooth**

**TISSUE-TONING  
Comfortable**



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You have been telling your patients for years and years that massage of the gums is just as important as cleaning the teeth. Yet it has always been hard to get patients to follow this advice when they found that toothbrushes with knife-sharp bristles gave them tender, bleeding gums.

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CO-AG and CO-AG-SED are indispensable to the busy practitioner. They are available from Chemists and Dental Depots.  
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For Positive Control of Haemorrhage and Relief of Post-Operative Pain and Soreness.

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FOR PREVENTION AND  
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TO RELIEVE  
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'Dettol' is therefore ideal for use in surgical work and  
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*The Safe Antiseptic*

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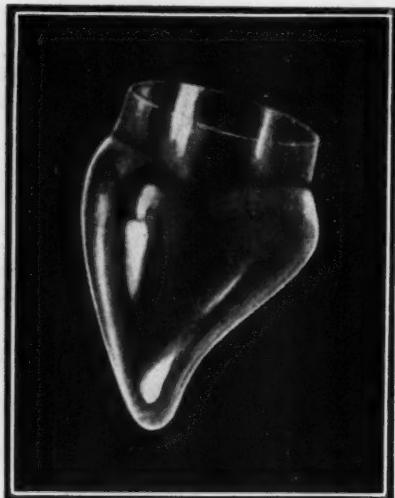
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(An Invention of Director Edelmann)

A new method for making individual jacket crowns  
of synthetic resin in the mouth of the patient.



The use of synthetic resins in dentistry is constantly increasing. Since our well-known "ODUS CELULOID CROWN FORMS" have attained a world-wide success, and are today used in practically every country of the world, it is only natural that we also have studied the problem of manufacturing a transparent and glass-clear crown form made of synthetic resin. We have now succeeded in producing such a glass-clear crown form which we are now introducing.

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By this method the dentist can make within the shortest possible time, and in a very simple manner, a permanent and individual tooth restoration in the patient's mouth.

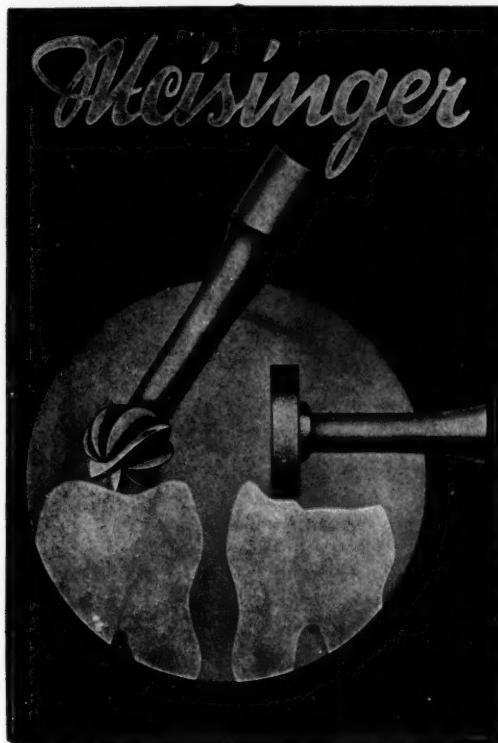
Presentation as follows :

- Box with 12 crown forms
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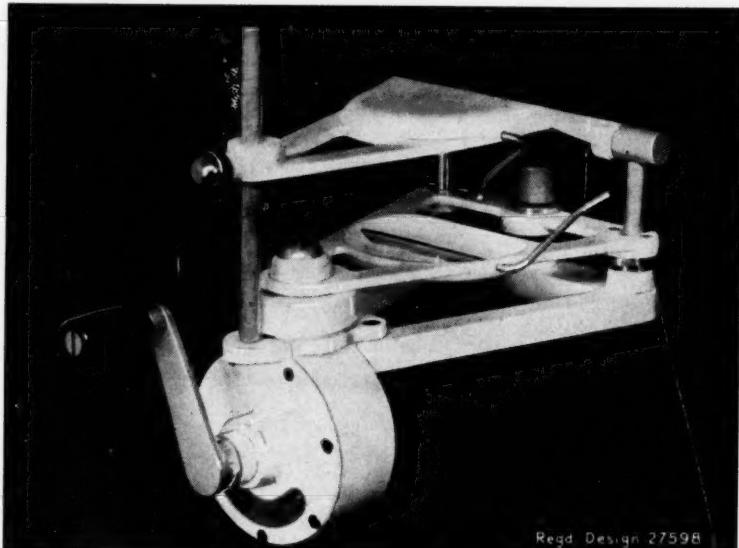
PRODUCT OF OVER 60 YEARS' MANUFACTURING  
EXPERIENCE, THESE INSTRUMENTS ARE WORLD FAMOUS  
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